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THE
JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

VOL. VII.



LONDON:
PUBLISHED FOR
The Anthropological Institute of Great Britain and Ireland,
BY
TRÜBNER & CO., 57 & 59, LUDGATE HILL.

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1878.

HARRISON AND SONS,
PRINTERS IN ORDINARY TO HER MAJESTY,
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THE JOURNAL
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ANTHROPOLOGICAL INSTITUTE
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GREAT BRITAIN AND IRELAND.

FEBRUARY 13TH, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same :—

FOR THE LIBRARY.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XX, No. 88.

From E. W. BRABROOK, Esq., F.S.A.—A Pamphlet on Friendly Societies and similar Institutions.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXV, No. 176.

From the SOCIETY.—Transactions and Proceedings of the Royal Society of Victoria. Vol. XII.

From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. XXI, No. 1.

From the SOCIETY OF ANTIQUARIES OF LONDON.—Archæologia : or Miscellaneous Tracts relating to Antiquity. Vol. XLIV, Part II.

From J. JEREMIAH, Esq. Jun.—Papers relating to the Urban Club.

From the SOCIETY.—Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. IX, Part I.

From Prof. F. V. HAYDEN, Hon. M.A.I.—Bulletin of the United States Geological and Geographical Survey of the Territories. Vol. II, No. 1 ; Photographic Portraits of the Indians of U.S. North America, representing 70 of the Principal Tribes.

From Captain HAROLD DILLON, F.S.A.—General Returns of the VOL. VII.

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British Army for the year 1873; Report on Military Prisons for 1875, by Lieut.-Col. DuCane, C.B., R.E.

From the ASSOCIATION.—Proceedings of the American Association for the Advancement of Science. Vol. XXIV, 1875.

From the SOCIETY.—Proceedings of the Asiatic Society of Bengal. No. 8, 1876; Journal of ditto. Vol. XLV, Part I, No. 2, and Part II, No. 3.

From the EDITOR.—*Revue Scientifique*. Nos. 31—33, 1877.

From the EDITOR.—Nature to date.

A special vote of thanks was passed to Prof. HAYDEN for his present of an album (which was exhibited at the meeting) containing photographs of the Indians of North America, representing 70 of the principal tribes.

Miss A. W. BUCKLAND read the following paper on Primitive Agriculture :—

PRIMITIVE AGRICULTURE. By A. W. BUCKLAND, M.A.I.

It has been justly remarked by Mr. Crawford that “no people ever attained a tolerable degree of civilization who did not cultivate one or other of the higher cereals,” and yet, strange to say, the subject of Primitive Agriculture is enveloped in mystery. We know, indeed, that the cultivation of bread-stuffs dates from a most venerable antiquity; that, as the author before quoted says, “The architectural monuments and the letters of Egypt, of ancient Greece, and of Italy, of Assyria, of Northern India, and of Northern China, were all produced by consumers of wheat. The monuments and letters of Southern India, of the Hindu-Chinese countries, of Southern China, of Java, and of Sumatra were the products of a rice-cultivating and rice-consuming people. The architectural monuments of Mexico and Peru, and we have no doubt also of Palenqué, were produced by the cultivators and consumers of maize.”* But, when we ask, as we very naturally do, to what people are we indebted for the origin of agriculture, and where is the native land of the cereals thus so early known, so widely spread, and so successfully cultivated in prehistoric times? we are met with vague and uncertain responses, even from the most accomplished of ethnologists and botanists.

Archæological records prove that man in his earliest condition was no cultivator of the soil, no keeper of herds and flocks, but a wild and savage hunter, flitting from place to place continually in pursuit of his prey, but, judging from the habits of modern savages, as tribes multiplied it must soon have been found inconvenient to allow the women and children to accompany the

* “Plants in reference to Ethnology.” “Trans. Eth. Soc.” vol. v, p. 190.

men in all their hunting expeditions ; these, therefore, were probably left encamped in some convenient spot, to await the return of the hunters from distant raids upon the wild denizens of the forests.

That agriculture originated with these watchers and waiters seems at least probable, for amongst them food must have been often scarce, and in time of famine strange diet becomes both necessary and acceptable, and fish, bird, and insect, must often have been supplemented by wild fruits and roots, and at last by the grasses, the seeds being eaten without preparation. But as savages and animals, both wild and domesticated, learn by experience what to eat and what to avoid, so experience must have taught these primitive peoples that the seeds of the various grasses which they found growing wild were not only good and sustaining food, but might be improved by being pounded and deprived of their husks, and by being either parched or mixed with water and baked or boiled ; and doubtless they soon learnt by observation that these seeds, scattered over the land, would reproduce their kind, and furnish them with food for another season of scarcity. The almost universal employment of women exclusively in agricultural pursuits among the lower races, may perhaps, be adduced in confirmation of this conjectural origin of agriculture, which certainly could never have originated with nomadic tribes, because they could not have remained long enough in one spot to sow the seed and reap the harvest. It is evident that the discovery of this eminently useful art, would be a powerful aid to the formation of settled tribes, and eventually of civilized communities and powerful nations ; because the necessity for a wandering life would thus by degrees be done away with ; the long journeys in search of food would be gradually abandoned for the cultivation of the soil, and herds would be kept to supplement the uncertain products of the chase, rendered yet more uncertain by the multiplication of man in one spot, and the consequent withdrawal of wild animals to a safe distance from their enemies. Thus man would become more and more dependent upon agriculture and upon the rearing of tame cattle, and from a hunter would become a husbandman. Taking this to have been the origin of agriculture, it is of course possible, nay probable, that the cultivation of the soil may have originated in many unconnected countries, and at various times ; but it is remarkable that many peoples, some living in fertile countries, have yet remained in total ignorance of this earliest of the arts to the present day ; but then such tribes have either continued to be houseless, wandering savages, whose simple wants are supplied by natural products, or, like the Esquimaux, their climate has prevented any successful attempt at agriculture.

Then again, neither Australia, New Zealand, nor the numerous Pacific Islands would seem to possess any indigenous species of grain, although some of the wild barleys and oats are found in New Zealand, Easter Island, and the West Indies; and in Australia a grass abounds which they say is neither good for man nor beast, but which yet resembles so much in outward appearance some of our cultivated grasses, that one is tempted to believe that this also might be developed into corn, and even to wonder whether here, in this ancient land, we may not trace the origin of some of our cereals.* It is, however, generally agreed that we must not look to the southern hemisphere for that development of agricultural skill resulting in the cultivation of the cereals; for throughout all these scattered lands, agriculture where it does exist, consists in the cultivation of roots and trees indigenous to those lands. The growth of the cereals requiring greater skill, represents also a higher stage of development in the races who, from wild originals, brought them into a state fit for the nourishment of man. That all our cereals sprang either spontaneously, or by cultivation from wild originals, cannot be doubted; but when we find that in the lake dwellings of Switzerland, belonging to the Stone Age, three kinds of wheat, two of barley, and two of millet were certainly known, we are forced to believe that the wild originals of wheat and barley must have merged into the cultivated, at an extremely early period in the history of our race, and that the art of agriculture must be of extreme antiquity.† This fact is, indeed, testified, not only by the knowledge of the art possessed by the lake dwellers, but by discoveries of corn with Egyptian mummies of vast antiquity, by traces which have been found, not only of corn, but of the furrows made for the cultivation of it, beneath bogs and peat mosses of great depth, and by the discovery of maize by Mr. Darwin on the coast of Peru, in a raised beach 85 feet above sea level, and in tombs belonging to a race long anterior to the Incas. But the countries producing the wild originals of our cultivated cereals, and therefore by inference the races also to whom we are indebted for their cultivation, remain unknown.

Mr. Crawford in pointing out the fact that the names for wheat and barley, vary in almost all languages, and that this variation in the names given to the cereals points to their having been independently cultivated in many different localities, says, that in Basque, the names for wheat, barley, and oats are purely

* We find, indeed, that the seeds of this grass (*Panicum Lavinode*) are used by the natives of the interior to make a sort of paste, which is described as sweet and palatable. See "Tropical Australia," Lieut.-Col. Sir T. L. Mitchell, p. 98.

† See Belt's "Naturalist in Nicaragua," and Rennie on "Peat Mosses."

Basque, while those for rye, rice, and maize are of Spanish origin. "The inference is," he says, "that the first-named plants were immemorially cultivated by the Basques, and the last only introduced into their country after the Roman conquest of Spain."* The mention of *oats* among the earlier list would seem to be a confirmation of the theory of most archæologists of the present day, that the Basques are the remnant of that pre-Aryan race to whom we are indebted for the introduction of bronze, since we are told, that oats do not appear in the Swiss Lake villages before the age of bronze. Rice would seem to have originated in tropical Asia, and never to have found its way in any considerable quantity into Europe in primitive times, either as an article of commerce or of agriculture.† Even now it is very little cultivated, except in Asia where it forms the food of millions, and in tropical America where it has been introduced in modern times. It has been commonly accepted as an indisputable fact, that maize is indigenous to America, and was unknown to the Eastern hemisphere before the time of Columbus. Whilst, however, allowing in the absence of proof to the contrary, that America was the native land of this most useful cereal, I cannot think that the date of its introduction to the Old World has, as yet, been satisfactorily ascertained. Respecting this plant Mr. Crawford says, "Maize is an exclusive product of America, and was as unknown to the Old World before the time of Columbus as tobacco or the pine-apple. With a wider geographical range than any other of the cereals, it has invaded every country of the Old World from the equator to the 50th degree of latitude, and is now the bread of many millions of people whose forefathers lived in ignorance of its existence. It is extensively cultivated in the southern provinces of China, in Japan, and in the islands of the Malay and Philippine archipelagos. Speke and Grant found it the principal corn in parts of the interior of Africa, which the feet of white man had never trodden before their own; and in Italy and Spain it was a frequent crop within fifty years of the discovery of the New World. This wide and rapid extension, maize owed to its adaptation to diversities of soil and climate, its hardihood, with consequent facility of propagation, and its eminent fecundity."‡ Mr. Crawford elsewhere lays down, as a rule, that where native names are given to cereals, it is a proof that they are indigenous to those countries; but in applying this rule to maize, he says, "The name as known to European nations is taken directly

* "Plants in reference to Ethnology." "Trans. Eth. Soc.," vol. v.

† See Observations as to the probability of its thriving in France, and the "Imperial Wheat" in Huc's "China"

‡ "Plants in reference to Ethnology." "Trans. Eth. Soc.," vol. v.

from the Spanish, and it is to be presumed that the conquerors of the New World borrowed it from one of the many languages of that continent. In some of the Oriental languages we have specific names for it, which seem entirely native, such as *bhutta* in Hindu, *jagung* in most of the languages of the Indian archipelago, *katsalva* in the Madagascar. This would lead to the belief that the plant was indigenous where such names are given to it; but the probability is, that they were taken from some native plant bearing a resemblance to maize. Thus in the two principal languages of Southern India, maize is named after the chief millet cultivated in the peninsula, the *cholu* or *ragi*, to which an epithet implying its foreign origin is added. The Turks give it the name of *boghdai misr*, or the wheat of Egypt, which is not more amiss than the names given by the French and English when they call it Indian and Turkey corn.* It does not seem incredible that maize should have been cultivated in Italy and Spain within fifty years of its discovery; but why it should have been called from the first *Turkish* or Indian corn, requires explanation; neither can we understand how it found its way so quickly into China, Japan, Madagascar, the Malay Archipelago, and all parts of Africa (for it was also found in cultivation at the Cape at its first discovery, even as in the interior by Speke and Grant, and at Angola as recorded by Mr. Monteiro) before any intercourse had been established between those countries and Europe or America.

A gentleman from the gold fields of South Africa informs me, that the Kaffirs beyond the frontier, who will not permit a white man to enter their territory, from the superstitious belief that the destruction of their race would follow immediately in his footsteps, yet cultivate maize largely, and have done so from time immemorial. It may also be interesting to observe that the same people describe minutely gigantic ruins existing in their land, the origin of which they do not know, but which many colonists believe to represent the Ophir of Scripture, but which no European has yet been able to visit, so vigilant are the natives.

Columbus is said to have introduced maize into Spain in 1520, but it is a singular fact that the old black letter book, entitled "A Nieuwe Herball," translated by Henry Lyte, Esq., and published in London in 1578, gives a very full description of this plant, but without any reference whatever to its American origin. It is there said, "This grayne groweth in Turkie, wher as it is used in time of dearth." "They do now call this grayne *Frimentum Turcicum* and *Frimentum Asiaticum*; in French Blé de Turquie or Blé Sarazin; in High Douche, Turkie Korn;

* "Plants in reference to Ethnology." "Trans. Eth. Soc.," vol. v.

in English, Turkish corn or Indian wheat." If we compare with this the following extract from Dr. Daubeny's "Lectures on Roman Husbandry" (1857), we shall perhaps come to the conclusion that the Turkish name for that which we call Turkish or Indian wheat, may not after all be so very far wrong. Dr. Daubeny says, "The names given to wheat by Pliny were *far adoremum*, *halic astrum* and *zea*. Although in modern books on botany the name *zea* is applied to maize, it certainly could have no relation to that now well-known article of food. For there can be no sort of doubt that maize is indigenous in America, and was not known in Europe till after the discovery of the New World. It is thought, indeed, that it is a native of Paraguay, where a variety is found differing in some respects from the cultivated kind, but not so essentially, as to be regarded as a distinct species. Sir Wm. Hooker, however, relates a curious circumstance, namely, that some grains called mummy wheat, were sent him from Egypt, which proved to be maize, and maize of that variety which comes from Paraguay. It was reported to have been taken from a mummy, on as good authority perhaps as most of the specimens which have been brought over, a fact that ought to render us cautious in believing the reports of the Arabs in similar cases, for it seems next to certain, that some fraud must here have been practised, as a valuable plant like maize, if ever known in Egypt, could not fail to have become general, in a country so well suited for its cultivation. Nevertheless, it is certainly curious that it should have been, not the commonly cultivated variety, but the one indigenous in Paraguay, which was passed off among the contents of an Egyptian tomb." In a note it is explained that "Mons. Rifault, a French traveller, reports that he obtained these grains of maize himself from an Egyptian catacomb."* In Chambers's Encyclopædia, we are told that although maize is supposed to have been unknown in the Eastern hemisphere before the time of Columbus, yet a representation of the plant is found in an ancient Chinese book in the Royal library in Paris, and some grains of it are reported to have been discovered in ancient houses in Athens. Indeed, I feel sure that if archæologists will look with unprejudiced eyes, they will yet find representations of this plant among the sculptures of Egypt and Greece.

To the objection that had this corn been known to the ancient Egyptians it would have become generally cultivated, it may be answered, that supposing it to have been of foreign origin, the conservatism of the Egyptians would have prevented its speedy adoption, and a land which produced so abundantly

* "Lectures on Roman Husbandry," by Chas. Daubeny, M.D., F.R.S., M.R.I.A., Professor of Botany, Oxford, 1857.

the superior grains, wheat and barley, would not be likely to resign them for that which "The Nieuwe Herball" says was in 1578 only cultivated in Turkey in time of famine, and of which it proceeds to say, "There is as yet no certain experience of the natural vertues of this corne. The bread that is made thereof is drie and harde, having very small fatnesse or moys-ture, wherefore men may easily judge that it nourisheth little and is evill of digestion." We can, however, readily understand that it would spread quickly, and be a great boon in those tropical lands unsuited for the production of wheat; but even now, after the experience of centuries, Europeans, except in Spain and Italy, cultivate this grain very sparingly, and rather as food for cattle than man. This question as to the knowledge of maize in the Eastern hemisphere prior to the time of Columbus, is most important in connection with the intercourse which many ethnologists believe can be proved to have existed between the Old World and the New, long ages before the birth of history. With regard to American agriculture, Sir John Lubbock says, "American agriculture was not imported from abroad. This is proved by the fact that the grains of the Old World were entirely absent, and that American agriculture was founded upon the maize, an American plant."* But to this it may be replied that adventurers from the Old World, whether driven accidentally to the New, or finding themselves there in the course of a voyage of discovery, would not carry with them grain for the purposes of cultivation, but being conversant with the growth of corn, would seize upon that which they found ready to their hand as the basis of their agriculture. Even had they conveyed with them wheat, they would probably have consumed it, or have found it unsuited to the soil of the new country. American legends are unanimous in ascribing the introduction of agriculture to foreigners coming from the sea, who are minutely described as white bearded men, distinct in race from the aborigenes. Both Quetzalcoatl in Mexico, and Manco Capac in Peru, are distinctly venerated as instructors in the art of the cultivation of maize, and although attempts have been made to prove both these to have been sun myths, I believe the balance of probability is in favour of their being real personages, notwithstanding the myths which have since accumulated round them, and the truth of the legends relating to the cultivation of maize in America, appears to me to be confirmed by the description given by Sir John Lubbock of the early traces of American agriculture. After describing these traces as consisting of irregular corn-hills, he proceeds to say "But Mr. Lapham has found traces of an earlier and more

* "Prehistoric Times," 2nd edition, p. 278.

systematic cultivation, in low parallel ridges, as if corn had been planted in drills; they average 4 ft. in width, twenty-five having been counted in the space of 100 feet, with a walk of about six inches between them; they are found in the richest soil in patches of different sizes, from twenty to one hundred or even three hundred acres; they are found in several other parts of the State of Wisconsin, and are called garden-beds. The garden-beds have long been replaced by the irregular corn-hills, yet according to Lapham the former are more modern than the mounds, over which they are sometimes carried." Hence Sir John Lubbock traces four long periods: 1st. That in which from an original barbarism the American tribes developed a knowledge of agriculture and a power of combination. 2nd. That in which for the first time mounds were erected and other great works undertaken. 3rd. The age of the garden-beds, which were probably not in use till the mounds had lost their sacred character, or they would not have been used for cultivation. 4th. The period in which man relapsed into partial barbarism, and the spots above-named relapsed into forest once more."* Now it is evident from this extract, that three different agricultural systems have prevailed among the civilised races of America, the latest, that of the irregular corn-hills, belongs without doubt to a comparatively modern period, and to the cultivation of maize, which is still planted in small hillocks by the Americans, and by those who have learnt the cultivation of this grain through them; the second, that of the garden-beds, which though much older, yet dates only to a time when the cities of the great mound builders had already fallen into decay, or when the builders had been supplanted by a new race, and these garden beds probably bear witness to the cultivation of some other grain than maize, perhaps a millet, which was certainly cultivated by some American tribes, whilst of the third or oldest, that under which the mound-builders lived and executed their gigantic works, no traces remain, probably because the agriculture then practised did not include any of the cereals, but consisted solely of roots and plants, such as still constitute the food of the South Sea Islanders, and of the aborigenes of many other lands, the wilder and more barbarous tribes contenting themselves with such things as grow spontaneously, whilst the more advanced *cultivate* such plants as are by them most highly esteemed. The *manioc* or *Jatropha manioc*, says Mr. Crawford, formed the principal bread of the rude inhabitants of native America, who had but one of the cereals, and that one not universally known and cultivated. Similar plants, we are told, form the chief food of many African tribes, and there seems to

* "Prehistoric Times," pp. 274—277.

be sufficient evidence to prove, that prior to the knowledge of the cereals, roots, prepared by pounding, maceration, and dessication, formed the universal food of the human race, and that the cereals were everywhere introduced by new and superior races, who had by some means acquired a knowledge of them in the land of their nativity. There is a singular passage in Herodotus, which tells us of a time when the Egyptians lived in this primæval state on roots and fruits. After enumerating a great many points in which the Egyptians differ from other nations, he writes, "Others feed on wheat and barley, but it is a very great disgrace for an Egyptian to make food of them, but they make bread from *spelt*, which some call *zea*."* And later he says of those who live in the morasses, "But to obtain food more easily they have the following inventions: when the river is full, and has made the plains like a sea, great numbers of lilies, which the Egyptians call *lotus*, spring up in the water; these they gather and dry in the sun, then having pounded the middle of the *lotus* which resembles a poppy, they make bread of it and bake it. The root also of this *lotus* is fit for food, and is tolerably sweet, and is round and of the size of an apple. There are also other lilies, like roses, that grow in the river, the fruit of which is contained in a separate pod, that springs up from the root in form very like a wasp's nest, in this there are many berries fit to be eaten of the size of an olive stone, and they are eaten both fresh and dried. The *byblus*, which is an annual plant, when they have pulled it up in the fens, they cut off the top of it and put to some other uses, but the lower part that is left, to the length of a cubit, they eat and sell. Those who are anxious to eat the *byblus* dressed in the most delicate manner, stew it in a hot pan and then eat it." It is somewhat singular that not only do the Egyptians resemble the Chinese in many of those points in which Herodotus points out their difference from other men, but also in the food thus consumed presumably by the lower classes, for M. Huc says, "Water lilies, yellow, white, red and pink, are much cultivated, the seeds are eaten as nuts, and boiled in sugar and water; the root is always excellent and wholesome however cooked, whether pickled with salt and vinegar to eat with rice, or reduced to powder and boiled with milk or water it is very agreeable, or eaten raw like fruit."†

Thus we see that in the two countries noted above all others for the cultivation of the cereals, there are evident traces of a time when the aborigenes lived as savages do now upon roots. *Root-eater*, we are told, among the Malays is a term of contempt

* "Herodotus," Book II, 92 and 86, Cary's edition.

† Huc's "Chinese Empire."

equivalent to *barbarian*, and doubtless it acquired this significance from the fact that the aborigines everywhere, either from old custom or from superstition, prefer the food of their forefathers. Thus we find even to the present day, the natives of Australia and the South Sea Islands, prefer their taro, yams, and manioc to the cereals, which, although now long familiar to them, are not extensively cultivated by them. Perhaps, the record of the sums expended in purchasing radishes, onions, and garlic for the builders of the Great Pyramid, and the absence of all mention of corn, may also be adduced as a proof of the truth of the statement of Herodotus, the *luxuries* above named being doubtless supplemented by the abundant lotus crop of the Nile. But then the question arises, What became of the vast quantity of corn grown in Egypt? It was, doubtless, partly consumed by the sacerdotal and military castes, much was stored, as we know, for seasons of scarcity, and much, perhaps, was exported in exchange for such articles of luxury as Egypt did not produce, until gradually but surely, the taste for bread became universal among them, even, as among ourselves, wheat has only gradually, and within the last century, entirely superseded the barley, rye, and oat bread familiar to our ancestors, and which is still eaten in Germany, Russia, and Scotland. It is a point especially worthy of note that races, however low they may be in the scale of humanity, have yet learnt to prepare native plants, many of them of a poisonous nature, and others of an acrid and unpleasant taste, by soaking them long in water, by pounding and drying them so as to extract the unwholesome matter, whilst retaining the starch, which they then make into a paste and either bake or boil, but chiefly the latter. Du Halde tells us, that the wheaten bread of the Chinese is chiefly prepared by boiling.* Even our Saxon ancestors retained a memory of the arts of savage life in the food they prepared from acorns, by pounding and soaking them long in water, to remove that bitterness which would seem to us to render them hopelessly unpalatable.†

The three nations of antiquity most celebrated for their knowledge of agriculture, confining that term to the cultivation of the cereals, are China, Egypt, and Peru, but in each of these, there are traces of a time when these cereals were unknown, and in each their introduction is distinctly ascribed to individuals who are likewise the founders of the nation, and of the highly developed civilization subsequently attained. In China this

* Huc's "Chinese Empire," p. 304.

† The fact that maize becomes more wholesome and palatable after long soaking in water and boiling, may perhaps account for its common use among the lower races.

teacher of agriculture was not Fohi, but the *second* emperor, or head of the *second dynasty*, some historians reckoning seventeen emperors between him and Fohi. The annals of China, indeed, seem to bear out in a remarkable manner the theory of the gradual development of civilization insisted on by modern ethnologists. In the time of Fohi, men are represented as differing but little from brutes, devouring every part of an animal, drinking the blood, and clothing themselves with skins; but Fohi taught them to make nets for fishing, and to bring up domestic animals for food and sacrifice; also he instructed them in music, and to use the 8 koua, or symbols of three lines each, instead of the quipus or knotted cords; he also regulated the laws of marriage, forbidding a man to marry a woman of his own name, whether related or not. Then Chin-nong introduced agriculture, inventing the necessary implements of husbandry, and teaching the people to sow five sorts of grain, and this he did, it is said, because the people had greatly increased, and the plants and animals were not sufficient for them. From hence he was called Chin-nong, which signifies Heavenly Husbandman. The five kinds of grain introduced by Chin-nong are still sown yearly by the Chinese Emperor at the great agricultural feast; they are wheat,* rice, millet, beans, and another kind of millet called Cao leang, which is, I understand, that sort of corn called Guinea corn, or Caffre corn, which is so widely cultivated in Asia and Africa; but Du Halde probably speaks of maize when, in describing the second government of Tartary, he says, "They have in particular a great quantity of millet, and a sort of grain unknown amongst us, called by the Chinese of the country mai-se-mi, as being of a middle species between wheat and rice, but whatever its proper name be, it is of a good taste and in great request in these cold countries. It would, perhaps, thrive in some places in Europe where no other grain will."†

In Egypt the inventor of the art of agriculture was Menes, the first earthly monarch; in Peru it was Manco Capac, whose wife and sister Mama Oello, was the instructress in the arts of spinning and weaving. The analogies to be traced between the civilizations of these three countries are too numerous to be noticed here, but it must be observed that the great festival of the search for Osiris appears in China, where it is referred to a much esteemed Mandarin who was drowned, and in whose honour a yearly feast was instituted with small gilt barks moving on the waters in search of the Mandarin, with sports, feasts, and fights upon the river.‡ The feast also of Isis is represented, but, as it would appear, in the form of a survival. On the day that

* Du Halde's "Hist. of China," vol. i, pp. 270 *et seq.*; vol. iv, p. 94.

† *Ibid.*, vol. i, p. 270.

‡ *Ibid.*, p. 210.

the sun enters the fifteenth degree of Aquarius, which is the commencement of spring, a feast is held in honour of husbandry and celebrated husbandmen; numerous figures in connection with this art are carried in procession, and among them a huge cow of clay, so large that forty men can with difficulty carry it; behind this cow, whose horns are gilt, is a young child with one foot naked and the other covered, representing the genius of labour and diligence. The child strikes the earthen cow without ceasing with a rod, as if to drive her forwards. She is followed by all the husbandmen with musical instruments, and by companies of masquers. At the governor's palace this cow is broken in pieces, and the fragments, with a number of small cows taken from the larger one, are distributed to the multitude, whilst the governor makes a discourse in praise of husbandry.* The evident connection between this ceremony and the festival of Isis represented in Greece by the wanderings of Io, and its having analogies in Indian mythology, must strike every ethnologist, and there is one point in it of peculiar interest, which is its connection with moon-worship in reference to agriculture. It has been said by Sir John Lubbock that agriculturists worship the sun, and hunters the moon; this, however is only partially true, for we find among agricultural races a triad representing the sun, the moon, and the earth. Wherever stone or brick pyramids are found, and it must be remarked that they are found only among agricultural, and, therefore, semi-civilized races, the largest is dedicated to the sun and the second to the moon. Moon-worship in America Mr. Bancroft appears to assign to a later date than sun-worship, and thinks it has reference to that crescent land from which so many of the American tribes derive their mythical origin; but in China, in Egypt, and throughout the east, the moon appears to have been the older deity, and to stand out distinctly as the especial goddess of agriculture.† The importance of the sun and the earth to agriculturists is easily understood, but why the moon should hold so prominent a position as the female or productive element in nature is not so clear. In our cold northern clime we have come to look upon the moon simply as a light-giver and regulator of the tides, and to regard the ancient belief in her influence upon vegetation as a superstition long exploded; nevertheless it would appear that in warmer climates the influence of the moon is not altogether mythical. A gentleman long resident in the West Indies informs me that the growth of the sugar-cane during moonlight nights so greatly exceeds that which takes place when the moon

* Du Halde, vol. ii, p. 119.

† It would appear to me that moon-worship originated with agriculturists, and sun-worship with metallurgists.

is not visible, that planters arrange their plantings so as to secure moonlight for the young canes. The knowledge of this fact probably regulated the great agricultural feast in China, which was always on the twenty-third day of the moon, thus securing to the young plants the full influence of the moon during the early stages of their growth. The observant Chinese also attach great importance to a fact unknown to us, namely, that some sorts of grain flower invariably by night, and others by day.* The sign taught to Chinese children as symbolical of the moon is a rabbit pounding rice in a mortar,† and this sign, when compared with the prominence given to the rabbit in American sculptures and hieroglyphics, seems an additional argument in favour of a connection between the hemispheres in prehistoric times, especially if, as Buffon says, that animal is not a native of America. It appears eight times on each face of the pyramid of Xochicalco (Mexico), in conjunction with other unexplained signs.‡ Bancroft reports it as among the rock carvings of Utah, and it forms the first sign of the Mexican calendar, the close resemblance of which to those of China and Tartary, has always been held as a strong argument for former intercourse between the widely separated peoples using them.

In a former paper I endeavoured to prove that the introduction of the arts of civilization, and particularly that of metallurgy, might be traced to a race of sun and serpent worshippers, having strong affinities with the Chinese, Egyptians, and ancient Accadians, a race which it is the custom to term Turanian. This race, which, however it may be denominated, was certainly pre-Aryan, may, I believe, be credited with having carried the seeds of useful knowledge over the earth within a certain zone. Agriculture, weaving, pottery, pyramidal structures, and metallurgy may be attributed to them, although of course it does not necessarily follow, that all these arts were invented at once, or spread at the same time over the surface of the globe, but the strong resemblances to be traced everywhere in the primitive stages of these arts, and the peculiar religion which invariably accompanies them, in which the serpent and human sacrifices play a prominent part, seem to point unmistakably to the influence of one race, whilst everywhere may be traced, beneath the originators of this peculiar civilization, one or more aboriginal races treated by the superior or dominant caste, as slaves or outcasts, yet retaining always their own superstitions, their own customs, and even, as has been shown, their own food, which in some cases appears

* See Du Halde, vol. iii, p. 2.

† Among some Aboriginal tribes in India the word for moon is the same as that for hare and roebuck.

‡ See also Tylor's "Anahuac." Bancroft's "Native Races of Pacific."

to have been prohibited to the newer race, as, according to the statement of Herodotus, beans were forbidden to the priestly caste in Egypt, although forming the chief food of the Aborigines there, as they did also in America and South Africa.* Pythagoras also forbade beans to his followers, deriving his notions from Egypt.

A paper upon primitive agriculture, would evidently be incomplete without some notice of the modes of agriculture and the implements employed in early times. Singularly enough, although ears of corn, grain of so many kinds, and even seeds of raspberries, have been distinguished among the relics of the Swiss lake dwellers, hitherto no agricultural implements have been discovered. It is probable, that the implements employed by early agriculturists were of the simplest form possible—that, in fact, they were only pointed sticks used to scratch the surface of the ground. Such sticks, used as picks or hoes, are represented on Egyptian monuments; and pointed sticks are still the sole implements of some savage tribes; but they appear to be used by them somewhat differently from the Egyptian *sarcle*.

The Bushmen use a stick loaded with a perforated stone for digging; and in a notice of New Guinea, by the Rev. S. Macfarlane, as reported in the *Sydney Morning Herald*, of May 27, we find: "A large plot of land is turned over very systematically and quickly by a number of men standing in a row, with a pointed stick in each hand, which they raise and plunge into the ground simultaneously, and then use them as so many levers to turn over the soil. It is surprising how quickly they can turn over an acre of soil in this way."

Bancroft describes the nearest approach to the plough among the Nahua natives of America, as being sticks, often tipped with copper, and there can be no doubt that the primitive plough was simply a pointed stick dragged through the ground by men, so as to form a furrow. Such a plough is represented on the Egyptian monuments, differing from the *sarcle* only in having a cross-piece of wood for a handle, to which was attached ropes whereby it was dragged along by four men. The old Roman plough was but little better than this, excepting that the share was of metal, and even to the present day in India, China, and it may be said the whole of Asia, the ploughs used differ very slightly from the early Egyptian type. In America, we are told, that the natives still use, without improvement, the old Roman plough as introduced by the Spaniards, whilst in South Africa ploughs were unknown until the advent of Europeans, and are only just coming into use among the natives, whose

* The Kaffirs still cultivate sparingly a peculiar bean which once formed a staple article of food among them.

sole agricultural implement, in addition to the digging sticks described above, was the hoe, an implement described by Burchell as resembling the adze or pecklo, but larger, which the women, who alone till the ground, raise above their heads, bringing it down with great force upon the hard sun-baked earth, thus merely breaking the earth irregularly, and putting in the seed.

The hoe described by Mr. Monteiro as the sole agricultural implement in use among the natives of Angola,* where also women are the only agriculturists, is made of iron, resembling an oyster shell in shape, with a short spike burnt into the knobbed stick which serves as a handle, and some of these are made with a double handle, so as to be used by two women at once. These hoes strongly remind one of the Mexican axes described by Tylor,† who says that, notwithstanding the skill displayed in knife and arrow making, the Mexicans "never discovered the art of making a hole in a stone hammer. The handles of the axes shown in the picture writing are clumsy sticks, swelling into a large knob at one end, and the axe blade is fixed into a hole in this knob." It appears to me probable that many of the so-called stone celts, especially those of large size, may have been hafted in this manner, and used as hoes, but if the implements of the Swiss lake dwellers were as simple as those described, it would be difficult after so many ages to distinguish the pointed stick used for ploughing or pecking up the soil from those used in the construction of their dwellings. It also appears to me possible that the innumerable flint flakes found among prehistoric relics may have been used in a wooden frame, as they still are in the *tribulum* of the East, and as Dr. Daubeny‡ tells us they were used in Gaul at the time of the Roman Conquest, as harrows or threshing machines. The same writer also describes a large hollow frame armed with teeth, which served the purpose of a modern reaping machine, and which may likewise have represented a prehistoric implement.

The employment of women in agricultural pursuits seems to have been continued from superstitious motives in semi-civilized countries, and prevails even now in China. According to M. Hue,§ it is no uncommon sight to see a plough drawn by a woman, her husband walking behind to guide it, whilst the great agricultural festival in China, the use of terraces on the mountain sides, and the attention paid to irrigation, serve to connect the agricultural systems of China and Peru so closely, that Mr. Tylor ap-

* See "Angola and the River Congo;" J. Monteiro and Burchell's "South Africa."

† Tylor's "Anahuac."

‡ "Six Lectures on Roman Husbandry;" Chas. Daubeny, M.D., F.R.S., &c.

§ Hue's "Chinese Empire," ii, p. 303.

pears to ascribe these usages in Peru to a Chinese colony. The use of ridges in agriculture seems to have been universal. Not only do they distinguish the garden beds in America, but Rennie describes them as underlying peat mosses in Scotland, where wheat cannot now be grown; and Dr. Daubeney tells us that among the Romans the corn was sown on ridges in wet soils, and between them on dry soils.* The American corn-hills, described as used for the cultivation of maize, seem to be peculiar to that country, and although they have been adopted by Europeans at the Cape, the natives still sow maize on level ground; nevertheless Mr. Monteiro describes the use of little hillocks in Angola for planting the mandioca.† It is a difficult task to gather up the scattered threads presented to us by the study of Primitive Agriculture, but the somewhat meagre facts I have been able to collect appear to me to confirm the general conclusions of modern ethnologists. We see everywhere primitive man, a naked savage, devoid of every art excepting those necessary to self-preservation, his first improvements being the manufacture of implements of war and the chase. Man in this condition would seem to have spread gradually over the whole earth, for his relics are found everywhere, and his descendants, still in the same state of utter barbarism, are found in many outlying lands which have been cut off by changes in the conformation of the land from communication with races who have gradually acquired civilization; and may also be traced in low and outcast tribes down-trodden by conquering hordes.

The origin of civilization, like the origin of races, remains an unsolved problem. From the similarity to be traced in the monuments, myths, customs, and religions of all early civilized or semi-civilized peoples, I have been led to the conclusion that it was never independently acquired, but was the result of constant intercommunication by channels long since become impracticable, and when this intercommunication ceased, we find civilization arrested, as in America and China, and only continually and increasingly developed among nations who from war and commerce have kept up continual and constant intercourse with each other. There can be little doubt that the first great stimulus to civilization was given when man, driven by necessity, began to till the ground. The first successful efforts in this direction would lead naturally to others; but roots and fruits were evidently cultivated long before the cereals, and this early stage of agricultural knowledge is still represented among

* Daubeney's "Lectures on Roman Husbandry," and Rennie on "Peat Mosses."

† See "Angola and the River Congo," p. 205, J. Monteiro.

the South Sea Islanders and among some of the lower aboriginal peoples of Asia, Africa, and America, although it is vain to conjecture when and where it first arose.

The cultivation of the cereals, however, represents a great advance in agricultural skill, but that this also was acquired at a very early period, the records of Egypt and China, and the relics from the Swiss lake dwellings sufficiently prove; and that it was not acquired independently by the lake dwellers is evident from the identity of the corn found with that grown in Egypt. The independent acquirement of agriculture in America has been affirmed by many, but I venture to believe it to be not yet proven. The absence of wheat and barley prove nothing, for the earlier civilizations of America were confined to tropical and semi-tropical regions, where these grains if introduced would not supersede maize, which there grows to perfection. It must not, however, be forgotten that all American legends, and legends usually have some basis of fact, unite in ascribing the cultivation of maize, as well as other customs wherein the civilized races of America resemble the ancient civilized races of the Eastern hemisphere, to foreign civilizers entering the country from the sea; and if maize be indeed indigenous to America, its presence in Asia and Africa prior to the time of Columbus, if proved, as I believe it can be, would go far to establish the fact of an intercourse subsisting between the hemispheres in pre-historic times. Nor must we forget, that the absence of cereal agriculture in those islands which may be supposed to represent the ancient stepping stones between the continents, may be accounted for, by prejudice and superstition, since the natives even now grow cereals very sparingly, whilst the cultivation of maize among races quite as low in the human scale in Africa, Madagascar, and New Guinea, would seem to point to the plant as a native of those regions as well as America, or to the extreme antiquity of its introduction to the Eastern hemisphere.

DISCUSSION.

The PRESIDENT, in thanking Miss Buckle, said that it was still much to be done before the origin of the cereals now or formerly in use could be ascertained. He expressed a hope that botanists would co-operate with the geologists in investigating the question. He mentioned the implements which had been used for the cultivation of the cereals for purposes, some remarks would be made on the antiquities. The earliest reaping machine mentioned by Pliny as in use in Greece was removed and deposited in a cabinet of the British Museum.

Mr. HYDE CLARKE said that he had had great pleasure in presiding at the British Association at Glasgow when Miss Buckland's paper was first read, and that he would at the same time refer to a point in that paper as to Egyptian mummy maize, and to the weapons from the Amazon, exhibited by Mr. Henry Hyde Clarke. The languages of the Amazons appeared to belong to three groups. Those of the Ueanambeu, &c., approached the dialects of the short races reaching from the Guinea Coast to the Akkas or Pygmies on the Nile. The Carib languages, containing resemblances to the former, had affinities with those of the fierce Dahomans and Whydams of West Africa. The third class belonged to a higher race, that of the Guarani or Tupi, reaching from the Plate river to Guiana. The language spoken in the lake villages, which had given name to Venezuela, was a Guarani or Agua, which he had correlated with the Agau of the Ethiopian region, and with the prehellenic Achaian of Hellas and the Caucasus. Lake Prasias, mentioned by Herodotus as having lake dwellings, was near an Achaian region. Now the remarkable circumstance affecting Miss Buckland's statement, that the maize found in the mummy was of the Paraguayan variety, is this, that an allied language is found in Paraguay and in the Ethiopian highlands near Egypt. Although he was of opinion that the line of migration by which the higher culture was brought into Peru and Mexico was by the South Pacific, he allowed full value to the northern line and that by Behring's Straits, by which much of the population of North America and some of that of South America had passed. He was also inclined to think that there must have been a prehistoric connection between South America and West Africa.

Miss BUCKLAND replied briefly to the remarks of the President, expressing her regret that she had unintentionally appropriated the suggestion in "Stone Implements," as to the probable use of some of the stone celts and flint flakes for agricultural purposes. She also observed that maize was quite unknown excepting in a cultivated form, no wild plant bearing any affinity to it having been recognized by botanists.

Mr. H. Hyde Clarke exhibited some weapons from the River Amazon, on which Mr. Franks, Mr. Hyde Clarke, and others made some remarks.

Lord Rosehill then exhibited some remarkable flint implements from Honduras, and briefly described them.

DISCUSSION.

The President, in thanking Lord Rosehill, congratulated him on the acquisition of so remarkable a series. He observed, that one of the implements bore a striking resemblance to those of what had been termed "the shoe-shaped type" from the river-gravels. It was remarkable that in more than one of the serrated instruments

the groups of points or projections were either five or ten in number, and he inquired whether this peculiarity had been observed in other specimens, and whether it was to be regarded as accidental or connected with some decimal system of counting.

In reply to some observations by Mr. Franks, the President said that the only Honduras specimen in his collection besides a spear-head like those exhibited was a lance-head of chalcedony, of much finer workmanship, which was found at Comayagua.

Mr. Hyde Clarke observed that Mr. Evans's suggestion as to the number of notches by fives on the Kreaslike weapon was well worthy of consideration. Although the arrangement was peculiar, there appeared to be a total of 28, which might correspond to a lunation. It was possible, as the two ends were of unequal size, that this sinuous weapon might represent a serpent. This was also to be taken into consideration with Mr. Blackmore's proposition that such instruments were used in human sacrifices. He did not, however, concur with him that Mexican practices would necessarily form an example for Central America. One reason he had for this conviction was, that more than one of the dialects of Lenca have a distinct relationship to the Kouma and Logba of West Africa, and he had lately shown the like geographical relationship for the mythology of a language of the Bribri of Costa Rica in Central America. The crescent weapon had twenty knobs, but none of the instruments, except the sinuous one, appeared to bear symbolical numbers. As to the knife, which bore some resemblance to a human figure, that was perhaps held as a dagger by the two legs, and should be regarded in reference to Mr. Blackmore's suggestion.

Mr. Blackmore, Mr. Franks, and others made observations on the exhibition.

Thanks were returned to the exhibitors of the above, and the meeting separated.

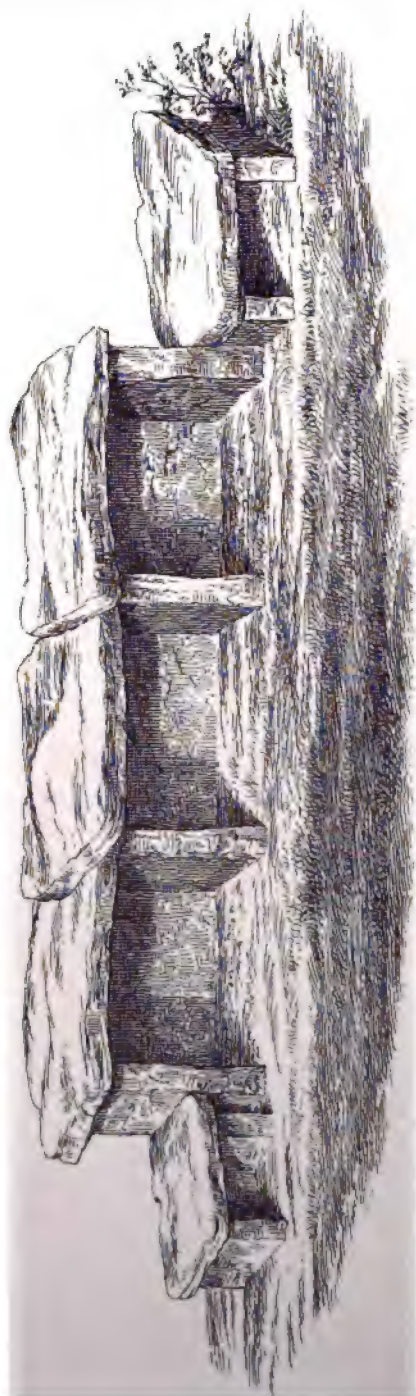
FEBRUARY 27TH, 1877.

JOHN EVANS, ESQ., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following new member was announced: A. H. KIEHL, Esq., of Cardiff.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.



FIVE-CELLED OPEN-FRONTED DOLMEN, FORMERLY
EXISTING NEAR NIDI MAND, NILGIRIS.
(FROM A ROUGH SKETCH MADE ON THE SPOT)

FOR THE LIBRARY.

- From the SOCIETY.—*Jahrbuch der K. K. Geologischen Reichsanstalt.* Vol. XXVI, No. 3; *Verhandlungen*, do. Nos. 11—13.
- From the SOCIETY.—*Mittheilungen der Anthropologischen Gesellschaft in Wien.* Vol. VI, No. 5.
- From the ASSOCIATION.—*Report of the Geologists Association for 1876.*
- From the ACADEMY.—*Atti della R. Accademia dei Lincei Anno. CCLXXIV.* Vol. I, Nos. 1 and 2.
- From the ACADEMY.—*Bulletin de l'Académie Imperiale des Sciences de St. Petersbourg.* Vol. XXII, No. 4; Vol. XXIII, No. 1.
- From the EDITOR.—*Matériaux pour l'Histoire de l'Homme.*
- From the SOCIETY.—*Annuaire de la Société d'Ethnographie, 1877.*
- From the EDITOR.—*Revue Scientifique*, Nos. 34 and 35. 1877.
- From the EDITOR.—*Nature (to date).*

Miss Buckland presented a digging stone from the Cape of Good Hope, for which thanks were returned.

Mr. M. J. Walhouse then read a paper entitled—

On NON-SEPULCHRAL RUDE STONE MONUMENTS. By M. J. Walhouse, F.R.A.S.

EVEN in the earlier part of the present century, many fanciful theories were current respecting the nature and intention of megalithic monuments, cromlechs, stone circles, and the like; and much ingenious speculation was wasted in tracing the coils and windings of serpent-temples in the scattered stones of Wiltshire and Somersetshire, or, as some would have it, in identifying them with Temples of the Sun or Bardic Circles. The Druids were seen everywhere; "rock gnomons" indicated their knowledge of astronomy, "rock basons" and "rocking stones," often natural, were ascribed to their skill in mechanics, and cromlechs were held to be the "altars" on which they celebrated their bloody rites; while any chance marks on their surfaces were channels to drain off the blood of victims, and holes or chinks in the slabs were magical openings, through which auguries were drawn from their dying groans and cries. When search succeeded theory, the spade proved the revealer of the secrets of such monuments, and the incontrovertible dispeller of Druidical and Dracontian dreams; and their intention was shown to be sepulchral in such an immense majority of instances that theory swung perhaps too absolutely to the other extreme, and refused to see in them any other nature or purpose. It is desired in this paper to offer a few remarks upon some megalithic remains that have come under my observation in India and else-

where, which may be ascribed to purposes other than sepulchral, and in many instances are connected with existing worship and observances. To begin with the simplest of monuments, the heap of stones or cairn—though usually sepulchral and piled over a tomb—it is occasionally rather memorial or ceremonial. Twice in India in wild mountain-passes I have seen cairns raised on spots where men had been carried away by tigers. Passers-by added stones to the heap, with the idea of propitiating the angry ghost of the unlucky man, which was believed to haunt the spot, and guide the tiger in its attacks on wayfarers. Such heaps are sometimes also raised at spots on the plains where travellers have died suddenly, from sickness, or in any unusual way, and where stones are scarce or have failed, bits of rag are tied to a neighbouring thorn-bush, after a custom that appears to prevail from China to Ireland, prompted possibly by an idea of propitiation. Though the Old Testament records three instances of cairn-burial, when Absalom, and Achan, and the King of Ai were laid under “a very great heap of stones,” the earliest mention of cairns is as boundary-marks.* In the agreement between Jacob and Laban recorded in the 31st chapter of Genesis, they gathered stones and made a heap expressly called a “heap of witness,” on which they sat and did eat, as a ceremonial compact, and declared the heap to be a witness between them, that neither would pass over it into the territory of the other. The late Professor H. H. Wilson has translated a hymn from the Rig Veda, addressed in the earlier verses to Mrityu or Death, and in the last to the Pitris or Manes, the 4th verse of which is remarkable as containing the earliest, and, so far as I know, the only Sanskrit allusion to rude stone monuments, and also as seeming to intimate a purpose not sepulchral, but propitiatory, and, as in Genesis, boundary-marking. “I place this circle of stones for the living; on this account, that no other may go beyond it. May they live a hundred years, keeping death at a distance by this heap.” In Livingstone’s Expedition to the Zambesi, at page 229, there is an account rather curiously recalling the transaction between Laban and Jacob. On passing a large stone cairn in the country of the Batoka, the guide related that once upon a time a tribe was going to fight with another tribe, but sitting down there consulted and agreed that it would be more like men to raise this heap of stones as their protest against the wrong the other tribe had done them, which,

* In old Greece heaps of stones, called *Hermia*, were commonly raised at crossways and on boundaries. They were sacred to *Hermes*, and each passer-by threw a stone on as an offering to the god. Homer (“*Odyssey*,” xvi, 471) mentions such a heap near Ithaca. Strabo saw similar heaps on the roads in Egypt (xvii, p. 818)

having accomplished, they returned quietly home. And again in his *Last Journals*, page 90, "we passed two cairns this morning at the beginning of the very sensible descent to the lake. They are very common in all this Southern Africa in the passes of the mountains, and are meant to mark divisions of countries, perhaps burial-places, but the Waiyan who accompanied us thought that they were merely heaps of stone collected by some one making a garden. The cairns were placed just about the spot where the blue waters of Nyassa first came fairly into view." This recalls the cairn piled by the Ten Thousand where the Euxine burst into sight, and the army raised the memorable cry.

Closely akin to unsepulchral cairns must be the *Mâni*, or long heaps of stones that excite the surprise of travellers in Thibet and Tartary. The late Mr. C. Horne, of the Bengal Civil Service, F.L.S., F.R.A.S., &c., who some years ago travelled over some of the highest Himalayan passes, wrote to me respecting them: "The Lama Tartars build long walls of loose stones, usually about 6 feet thick and 5 high; sometimes as at Nako, half a mile long. Every native passes them to his right; none seem to know why: hence there is a path worn on that side; and every one adds a stone; they must be the growth of centuries, every generation adding some yards. The heaps often have flags stuck on them and scraps of paper, with some sacred writing, as also horns of ibex, wild sheep, goats, &c., and round boulder-stones, inscribed with the Buddhist prayer in a circle, are often laid on the top. A great mystery attaches to them; none can explain their uses certainly; some say they are devotional, others that they were built on return from long journeys. The farthest object I saw in Tartary was a long double range of these walls." Mr. Wilson recently in his "*Abode of Snow*" mentions having passed hundreds of these *Mâni* on his journey, sometimes in the most desolate situations, and remarks that the prodigious number of them in so thinly peopled a country indicates an extraordinary waste of human energy. Mr. Horne also mentioned that single heaps of stones abounded everywhere, "existing on every hill-top and pass; some evidently of great antiquity; in some places they are called *Thôr*.* At the entrance of the province of Kurnawûr there is a large field of them, all set up by grateful hill-men returning safe from the plains. Another cause of them is the setting of boundary marks by petty chiefs in old times. Presents too

* The missionaries, Huc and Gabet, encountered similar large heaps on the great plateau in Chinese Tartary, there called *Oboes*, and stuck over with boughs on which strips of inscribed paper are hung. MM. Huc and Gabet say the Tartars worship the Spirit of the Mountain at them.

are sometimes given by wealthy people to erect stone heaps on apparently inaccessible peaks to commemorate their names. The highest I saw was on the Shatûl peak (17,000 feet), near Kurnawûr. The climber was paid 100 rupees by a rich merchant, but disappointed his employer, as the 'Thôr' is called by his, and not the merchant's, name. I never heard of people being buried under these heaps." The foregoing examples will suffice to show how cairns, both in ancient and modern times, may have had other than sepulchral purposes. The legend of Izdubar or Nimrod, between 2,000 and 3,000 B.C., in the Babylonian tablets, says of him, "He collected great stones; he piled up the great stones."

A brief reference will be sufficient to perhaps the most extraordinary and enigmatical groups of megalithic remains, the great assemblages of stones disposed in rows, avenues, and alignments in the neighbourhood of Carnac, in Brittany, and in England at Ashdown, in Berkshire, and in many places on the Dartmoor.

Somewhat analogous remains in the East have been described by the late Col. Meadows Taylor in Shôrapûr, a province of Hydrabad, in the Deccan. The secret of these monuments has not yet been certainly read. Mr. Fergusson's conjecture that they are the memorials of battle-fields seems as good as any that has been proposed, with reference at least to most; at any rate, there has been nothing discovered proving them to mark burial-places. I find it, however, difficult to accept Mr. Fergusson's view that the long parallel lines of stones on the Dartmoor represents an army, or two armies, drawn up in battle-array. I have personally examined a considerable number of these strange narrow paths and found them in all sorts of places, in hollows on hill-sides, and running over the brows of hills. Many exist unnoticed amongst the fern and bushes of the rougher tracts, and hardly could denote battle-arrays. The avenues under Kes Tor, near Chagford, in particular, referred to by Mr. Fergusson ("Rude Stone Monuments," p. 56), as possibly representing a battle-array, which I carefully walked over last summer, did not appear to me to carry out the idea. The long double lines of stones starting from the "Long-stone," a tall menhir, bend round the sides of an eminence under the somewhat altar-shaped rocks of the Kes Tor, on the top of which a very large and regular rock-bason, till lately filled with and concealed by peat, has been discovered, and seem to stretch on, till disappearing, toward the great stone circle, indistinctly visible a long way below in a hollow on the other side of the Teign. These mysterious lines of stones would often recall processional paths were they not so narrow, beginning and ending so abruptly, ap-

parently without purpose or direction, and at times in situations hard to reconcile with the idea: their meaning has not been penetrated, but they suggest nothing sepulchral.* In India the remains, apparently of this class, at Shahpûr, in the Shôrapûr principality, were considered by Col. Meadows Taylor more remarkable and interesting even than the cromlechs and stone circles which also abound in the neighbourhood and with which they are sometimes associated. Huge masses of granite are disposed in an exact parallelogram 400 feet by 260, or sometimes in squares, enclosing similar figures of smaller rocks, and in the centre of some rises a tumulus, which excavation has shown to be sepulchral or possibly sacrificial. These squares are grouped together over large areas; the rocks composing the outer lines are from 7 to 10 feet long, nearly as broad, and from 4 to 7 feet high, and must have been brought from hills nearly two miles distant over a difficult surface; an undertaking impossible in that country at present. All the squares do not enlose tumuli; in one large group there are but two, but as cairns do accompany them in several instances, it would not be safe to assert that they could be other than appurtenances at least to sepulchres. As to the multitudinous groups of upright stones that so remarkably characterise the Kasia Hills bordering on Assam, Major Godwin-Austen, in a paper read before the Institute, has shown that they have no connection with funeral obsequies, but are memorials raised to propitiate the spirits of the deceased and to perpetuate their memories. Regular trilithons often occur amongst them, and it is remarkable that amongst another aboriginal tribe, the Santhals, in Bengal, a trilithon that must be a very striking monument is at this day an altogether devotional object. It is described at page 192 of Dr. Hunter's "*Annals of Royal Bengal*" as "three huge monoliths of gneiss of great beauty, two upright, the third laid across them. The stones are upwards of 12 feet in length, each weighing upwards of 7 tons, quadrilateral, 10 feet round, the horizontal stone kept in its place by a mortise or tenon. Origin unknown: worshipped by the Santhals at the West Gate of their Holy City in Bheerbloom."

Trilithons that must be not dissimilar to this have been described by Dr. Barth in the regions about Tripoli, in northern Africa. Two are figured at pages 411-12 of Fergusson's "*Rude Stone Monuments*." There is no reason to regard them as sepul-

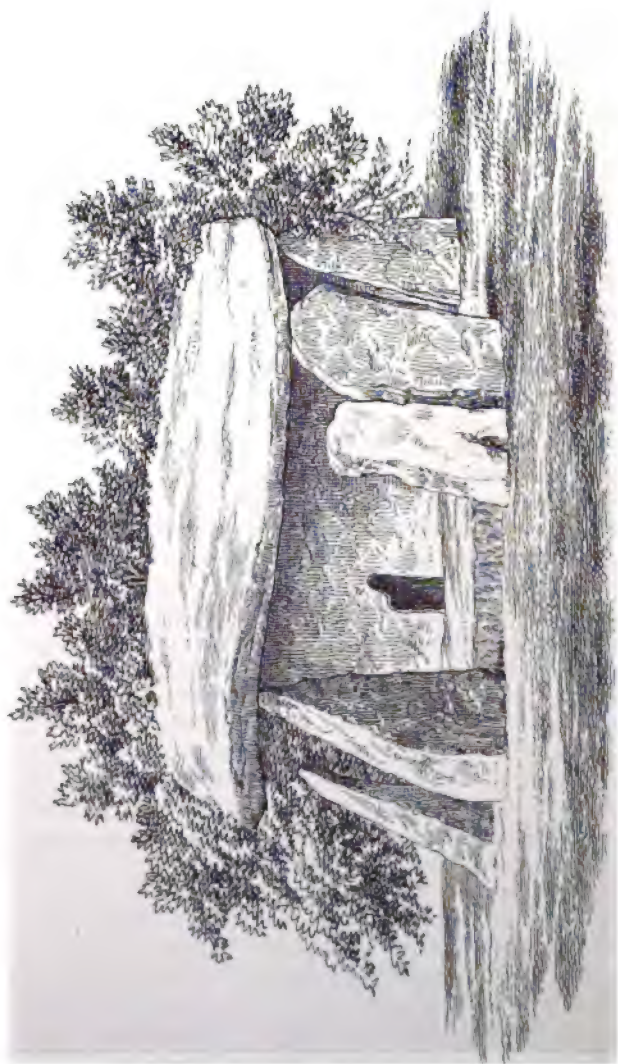
* Since writing the above, I find that in the Appendix to vol. i of the *Journal of this Institute*, at page cxi, et seq., Mr. Spence Hardy has described these Dartmoor avenues, and thinks they may be "burial places for the honoured dead," whilst Dr. A. Campbell considered them to be "indisputable signs of cultivation." All these so different opinions show that these remains are still enigmas.

chral, and Dr. Barth, a competent observer, thinks them "evidently connected with the religious rites of the ancient inhabitants of these regions." And so it may be inferred was "the gigantic circle with huge upright stones, 15 feet high, and some with long blocks laid across," seen by Mr. Palgrave in the previously unknown wastes of central Arabia, of which, it is to be hoped, more may be heard some day.*

Professor Max Müller remarks, "Children all over the world, if building houses with cards, will build cromlechs; and people all over the world, if the neighbourhood supplies large slabs of stone, will put three stones together to keep out the sun or the wind, and put a fourth stone on the top to keep out the rain;" and whenever a people become led to form a rude image and reverence it, or regard a rough stone with superstitious ideas, it was in such a structure they may be supposed to have been impelled to place it. This was strongly borne in upon the mind on first seeing the small cromlech-temples used to-day by the people in some parts of Southern India. I had become fixed in the belief that all cromlech-like structures were sepulchral, till once on emerging from a wild mountain-pass on to the table-land of Mysore I saw by the wayside a primitive temple consisting of back and side slabs set on edge, with a covering slab laid over, the front open, a rude image of Hanumân within, and a few flowers strewn before it. The appropriateness of such a construction, and the readiness with which it could be imagined and raised by a rude people in a wild locality, were at once obvious. I afterwards saw some more similar rude-stone temples always in unfrequented tracts. Of course these rustic shrines were not prehistoric, but their use and tradition may have come down from prehistoric times.† Subsequently on the Shiarâi Hills, a fine mountain-range with a table-land of about 4,000 feet general elevation, in the district of Salem, midway between Madras and the Malabar coast, I found these temple-cromlechs in common use by the Malayâlies = hill people, a harmless agricultural tribe, speaking Tamil, and not apparently materially different from the Tamil inhabitants of the plains, from whence they doubtless came. They have several villages and a considerable amount of cultivation on the plateau and its lower slopes. In every village there is at least one temple-cromlech, constructed of slabs with one side open, usually under a tree, containing a crowd of lingam-stones, splinters of rock or long pebbles, mostly

* In Tongataboo the officers of H.M.S. "Calliope" met with a monument "resembling the larger gateway stones of Stonehenge."

† Close to Bangalore there is an ancient temple approached by a magnificent avenue of trees, beneath which there is a number of small hut-temples, so primitive as to consist only of three upright stones with a superincumbent slab on the top, and inside a rude effigy of a deity carved on the stone forming the back.



A CROMLECH-TEMPLE, ON THE SHIVARAI HILLS.
MADRAS.
(BURIED IN COFFEE BUSHES)

tipped with red paint, and occasionally a small image. In two places I saw a collection of eight or nine of these primitive temples arranged in a semicircle under a huge tree. The crowd of stones in them has a curious appearance, for the people appear especially to choose any of unusual description: splinters of milk-white quartz or black serpentine, water-worn pebbles of various colours, any long piece of stone or pebble that particularly catches the eye, seems to have been picked up and added to the collection. Pieces of petrified wood, and what is most interesting, often quite a number of regular celts, examples of which may be seen in Col. Lane Fox's collection in the Bethnal Green Museum. I regret not having ascertained whether there was any particular name or idea associated with the celts. A rough sketch of one of these rude stone temples is annexed: in the centre there was a large splinter of black stone surrounded by some dozens of small pebbles, all tipped with paint, which is renewed on particular occasions; flowers, boiled rice tinged yellow with turmeric, and fruits are laid before them. Much further to the north, amongst the aboriginal hill tribes of Ráj-mahal, like structures and worship appear to be used. The Rev. Mr. Christian reports that "a large black stone in an enclosure *like a hogsty* (which must mean one of these cromlech-shrines), is a principal object of their worship."

Experience indeed seems to show that *open-sided* structures of the above class were mostly free-standing and non-sepulchral, whilst cromlechs closed on all sides are tombs invariably containing signs of interment, and appear to have been always originally covered by a tumulus. Open-sided dolmens of the former class, though frequent in Wales and Cornwall, are rare elsewhere in England. Of the half-dozen or so recorded I have seen that by the Roll-right stones on the Warwickshire and Oxfordshire boundary, that at Drewsteignton in Devonshire, called locally the Spinster's Rocks, and Kit's Coty house, near Aylesford, known probably to many present. None of these seem to me to have been sepulchral or ever covered by a tumulus, and I have never heard of anything having been found in them betokening interments. The difference between them and the great chambered graves at Uley, Stoney Littleton, in Somersetshire, and in Guernsey, which I have also inspected, is very obvious. Though Kit's Coty House is commonly called Horsa's Grave, and that chieftain was doubtless buried in the neighbourhood, Professor Stephens, of Copenhagen, considers that Bede's description of his monument, "*Monumentum sub nomine insigne*," rather suggests a standing stone carved with his name.

On the Nilgiri Hills, in Madras, there is a large number of

open-sided dolmens of this class, several of which present the special peculiarity of being sculptured inside with hunting scenes, processional groups, and figures commemorative of Satis or widow immolation. Usually a large dolmen so sculptured is surrounded by smaller plain ones, and consists of a single cell, or sometimes of two, three, four, or even five in a row. In the "Journal of Anthropology, No. I, p. 43, Major Ross King describes a two-celled sculptured dolmen, found by him on the southern edge of the Nilgiri plateau, as having the whole interior, that is to say, the inner face of each slab, covered over with carving; and this is a rough sketch of one discovered by myself, which has, however, been subsequently thrown down and destroyed to make way for coffee planting. It consisted of three large central cells with a smaller at each end; the middle cells were roofed with large covering stones overlapping one another at the edges, and the supporting slabs were covered within by rudely sculptured hunting and processional groups. Nothing denoting an interment has been found in any of these dolmens, whether carved or plain, though burial cairns of another type are abundant on the hills. The various Nilgiri tribes, who have been sufficiently often described before this Institute, lay no claim to them, and regard them with diverse feelings of superstition. Thus the *Todas* will not *touch* a sculptured dolmen, and the *Bādāgas*, the most numerous and recent of the hill tribes, have turned them into deities, not looking on them as temples, but as actual gods; and when it was attempted to remove some of the carved slabs for a museum they petitioned strongly against the proceeding, saying, "It is our God." Nevertheless it is certain that they who are known to have migrated to the Nilgiri from Mysore, three centuries ago, neither raised the dolmens nor sculptured the stones, any more than the *Todas*, who will not *touch* them; and whether the builders of the dolmens also wrought the carvings is a debatable point. The latter are distinctly Hindu, and bear allusions to the *Bāśava* creed, which originated about nine centuries ago. It may be that fugitives from the plains below, in those ages of which nothing is known but that they were filled with wars and turmoil, may have made those carvings on the stones of the temple-like structures they found standing, but the whole point is doubtful. At any rate there is nothing to connect them with burial purposes; no vestige of urn or interment was discovered in the five-celled dolmen found by me, but in one of the large compartments, in which a man could easily sit, there lay a long piece of polished leg bone, which the people with me said had been put there by the *Kurumbars* to denote a deity. That dwarfish half wild jungle race, which with their near relatives the *Irulas* (= "children of

darkness") inhabit the most secluded densely wooded fastnesses of the mountain slopes, are to my mind not the least probably connected with the aboriginal builders of these monuments. Some threads of connection still exist. The Kurumbars of Mulli, one of the wildest Nilgiri declivities, come up annually to worship at one of the dolmens on the table-land above, in which they say one of their old gods resides. Regarded with fear and hatred as sorcerers by the agricultural Bādāgas of the table-land, one of them must nevertheless at sowing time be called to guide the first plough for two or three yards, and go through a mystic pantomime of propitiation to the earth deity, without which the crop would certainly fail. When so summoned the Kurumbar must pass the night by the dolmens alone, and I have seen one who had been called from his forest-dwelling for the morning ceremony, sitting after dark on the capstone of a dolmen with heels and hams drawn together and chin on knees, looking like some huge ghostly fowl perched on the mysterious stones.

Both the Kurumbars and Irulas, when one of them dies, have a custom of depositing a long water-worn pebble (*devva kotta kallu*) taken from the bed of a stream, as a memorial, in some of the sculptured dolmens. One large dolmen at Melkudah, in particular, was found filled up to the capstone with these pebbles, which must have been the accumulation of generations.*

Still pursuing the subject of open-sided dolmens, Colonel Meadows Taylor reports that they abound in Sorapur in the Deccan, "open at one side, and formed of three large slabs for walls, and one for a roof. All such cromlechs I have seen are empty." Intermixed with them, however, are numbers of "kistvaens smaller than the cromlechs, constructed on the same

* In Brahman funeral ceremonies there is a usage curiously recalling this custom of a primitive outcast tribe, and perhaps retaining some vestige of stoneworship. After a Brahman's body has been burnt, there are ten days' mourning; on the third day the relations and friends re-assemble at the burning-ground and, after the bones and ashes have been gathered, a small bank of earth is thrown up, on which three stones are set, one called by the name of the deceased, another by that of Yama, the Lord of Hell, and the last is called Rudra, the causer of tears. The three stones are decorated with flowers, and a sacrifice offered them amid much lamentation. The leader of the funeral then takes the three stones home with him, and on the tenth day, after other ceremonies have been gone through and the stones again worshipped, the leader takes them, and going into water up to the neck, turns towards the sun and addresses it thus: "Up to this day these stones have represented the deceased; henceforth let him cease to be a corpse; be he now received into Swarga: there let him be happy as long as Ganges shall flow." Saying these words, he casts the stones behind him, and returns to the bank; so the mourning ends. Another allied primitive practice is that of the Kharrias, a very wild jungle tribe of Singbhum in Bengal. This people, after a death, set up a tall rough slab of stone close to the house, to which, as representing the deceased, they make daily oblations.

principle, but closed on all sides. Generally a circular hole exists in one of the sides." These closed and holed dolmens always contain interments. Here the same principle obtains of open-sided dolmens showing no sepulchral character, and never having been covered with a mound; but it is peculiar that in this instance the closed and holed sepulchral dolmens elsewhere, originally at least, subterranean, stand mixed with the open class, and cannot have ever been underground. This is accounted for probably by Colonel Meadows Taylor's remark that "the whole of the ground covered by the erections is rock, into which the slabs have been fixed, resting upon the rock." Some unknown cause may have influenced the choice of such a spot, the nature of which made it impossible to construct the sepulchral chambers underground. In the mountainous province of Coorg closed and holed kistvaens, sunk underground and filled with sepulchral deposits, are also abundant; but there is one remarkable group which shows no sepulchral character. Near Somawarpettah, on the rocky summit of a hill commanding a fine prospect all round, there are four large cromlechs, not closed, but consisting of huge overlying slabs supported by masses of stone. The largest slab is 11 feet 8 inches long by 8 feet wide. Each cromlech is surrounded by a circle of stones, stands out in high relief on the hill top, and has never been covered with earth. They were quite empty; nothing connected with interments could be found in or about them, and their appearance is certainly suggestive of altars. Somewhat similar to these is a cromlech at Pallicondah, 12 miles from Vellore, in the Madras Presidency, the one single free-standing dolmen, with no kistvaen or subterranean character about it that I have seen or heard of *on the plains*. A figure inadequately representing its massiveness and actual appearance will be found at page 491 of "Rude Stone Monuments." The capstone is 12 feet long by 8 wide, and about $2\frac{1}{4}$ thick, and supported, not by slabs, but by six large rounded boulder-like masses of granite, two at the north end, two at the south, two smaller, not touching the capstone, on the west side, and the east side open. The capstone is elevated about 5 feet from the ground, and on its upper centre were four round depressions, placed

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thus, o o, that to the right being smallest. Mr. Fergusson

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speaks of it as "a sepulchral mound," but it gave me no such idea, for it stands upon a granite platform that rises above the soil, with no means for interment beneath. Open-sided dolmens perfectly corresponding with the Indian and European examples are also abundant in Palestine upon the east side of the Jordan. Mr. D. Robertson Blaine describes them in the "Athenæum" as

all formed on the same plan. "Three slabs of unhewn granite are fixed perpendicularly in the ground, closely and at a right angle to each other, thus forming three sides of a square. Upon these a fourth slab is laid, overlapping its supports, the south-east side always left open; the supporting slabs about 6 feet high, the top slab an irregular square of about 12 feet." No excavations appear to have been made, but judging from analogy they are not sepulchral. The Arabs call them *Beit el Ghûl* = House of the Ghoul, and are terribly afraid of the spot.

The peculiar class of megaliths called "demi-dolmens," in which one end of the capstone always rests on the ground, also has no discoverable connection with interments.* The only example I have ever seen is one on the north coast of Jersey. Captain S. P. Oliver ("Journal of the Ethnological Society of London," vol. ii, p. 66, New Series), speaks of it as "a doubtful demi-dolmen in the northern part of Trinity parish, called the *Roche à la Fée*," which he was unable to visit. It is on a rocky point of the high cliff between Petit Fort and Vicard Harbour, a beautiful and commanding spot overhanging the sea. The stone is of irregular shape, enormously large and ponderous, 5 yards long, $4\frac{1}{2}$ broad, and about $2\frac{1}{2}$ in greatest thickness, and whereas all the other prehistoric remains in the island are of granite, this only is of a pudding-stone formation prevalent in the north-east part of the island, and it has no conceivable sepulchral connection. Another Jersey antiquity is spoken of by Captain Oliver in the same page, thus: "There is some rumour of a trilithon, called the *Pré des Trois Roches*, having existed close to the sea at St. Ouen, but I could find no trace of it." Indeed it is no easy matter to discover it. I was hunting for it more than half a summer's day in 1860, and found it at last in a field called *Pré des Trois Roches*, about 500 yards S.E. of the piece of water called St. Ouen's Fishpond. The two standing stones are thick and stumpy, nearly 5 feet high; a third stone, of the same apparent size, lies close by, on the north, flat, embedded in the ground. This megalith also seemed to me non-sepulchral.

I would venture to say little upon stone circles. The far larger proportion of them is undoubtedly sepulchral. Of course all that enclose tumuli or tomb-chambers are. Mr. Fergusson holds that all circles up to 100 feet are sepulchral; when they become larger, consisting of stones rising several feet above the surface, and enclosing no form of grave, they may possibly have been devotional. Of examples known to me, I cannot but agree

* It is now asserted, apparently with reason, that these megaliths are only dilapidated dolmens that have lost some of their supports, and have no claim to be regarded as a separate class.

with the late Rev. C. H. Hartshorne, F.S.A., in considering the large circles on Corndon, on the Shropshire and Welsh border, as having rather a religious application: nothing, I believe, has been discovered in them denoting burials (*see* "Salopia Antiqua"). The fine circle, too, on the border of the Dartmoor, on the bank of the Teign, above Chagford, seems to me non-sepulchral. On the Nilgiri hills, on the north declivity of the highest summit, on a spot of exceeding picturesque beauty, where several wooded slopes converge, there is a double circle, 35 feet in diameter, of stones of rather small size, none exceeding 3 feet above the ground, except two, which form an entrance on the south side. The stones are placed rather close together, and the inner and outer rings are a yard apart. No trace of an interment has been discovered in this circle, the only one of the kind known to me on those hills. The Irūlas previously referred to have, however, two temples on the top of Rangaswami Peak, the highest eastern Nilgiri summit, where they twice a year worship Vishnu under the name of Rangaswami, with much ceremony. The temples are circles of rough stones, each enclosing an upright stone that represents the deity. One of the circles is of recent date. The Rev. Henry Baker, of the Travancore Mission, informed me that though tumuli and kistvaens abound on the Travancore Hills, in the extreme south of India, he had only seen one stone circle, much dilapidated, and that it contained no marks of interment. The natives called it a Rāshi hill of Parasurāma, from a tradition that when Parasurāma (Rama of the Axe) created Kerala (the long strip of seaboard between the Western Ghats and the Indian Ocean), rolling back the waters, he sowed the new land with *rashies* (the small spangle-like gold Hindu coins frequently found all over the country), and buried the surplus in this circle. The "Athenæum" of 31st May, 1851, reported that Sir Robert Schomburgk had discovered in St. Domingo "a granite ring, 2,270 feet in circumference. In the middle of this circle lies an idol, nearly 6 feet in length, formed likewise out of granite. In all his travels in Guiana or the continent Sir Robert never met with such a monument." This too appears an instance of a devotional circle.

It may not be out of place to conclude this paper with some instances of worship and observances, unconnected with funeral rites, paid to rough stones anciently and at the present day. Pansanias expressly affirms (Lib. vii, 22) that in the most ancient times, universally amongst the Greeks, rough stones received divine honours instead of images* (*ἀντὶ ἀγαλμάτων*)

* Lucian (de Deâ Syriâ) affirms that the Egyptians first attained knowledge of divine things and built temples, which the Assyrians learnt from them, but

ἔιχον ἀργοὶ λίθοι θεῶν τιμὰς), and in different passages he speaks of Hercules (Lib. ix, 24), Juno (id.), and even Cupid (Lib. ix, 27) and the Graces (Lib. ix, 33), being represented by rough stones "according to ancient usage." Apollonius Rhodius II, 1172, speaks of a great sacred stone in the temple of Mars at Orchomenos, worshipped by the Amazons. The pre-Mahometan Arabians were especially stone-worshippers, Maximus Tyrius, who says he saw it, affirms their idol was only a square stone, whether hewn or rough is not clear. Suidas says they worshipped the planet Mars at Petra under that figure. The ancient Laplanders worshipped rough stones called Seitech. The Israelites are warned against "setting up any image of stone in their land to bow down to it" (Levit. xxvi). The "image of stone" (Heb. Eben maskit; Septuagint, λίθος σκοπὸς; Vulgate, lapis insignis) may have been a rough stone pillar, perhaps a phallic emblem. Up to the 9th century A.D., there were several decrees of Councils and kings against popular stone-worship, evidently not of images, but of rude stones (*saxa-lapides*.) I think it not impossible one such stone may still be seen. In Devonshire, in the Chagford Valley, under the Kestor and the mysterious stone avenues, and not far below the meeting of the North and South Teign, there is a great stone, famous locally as the Puggie stone. It stands in a fairy-haunted spot above the wooded hollow down which the Teign rushes from the Dartmoor heights, and is a large rock-boulder 12 or 15 feet high, and little less in breadth. The outer side is plain, but on the inner side facing the river, there are natural rifts and hollows, so disposed as to give some idea of a gigantic human face, and grotesquely indicate eyebrows, nose, and mouth. On the top of the stone there is a large and regular rock-basin. Many stories cluster about the spot, and the name, Puggie Stone, is evidently derived from Pouke, the old term for a demon or evil spirit, whence too Puck. Cromlechs in the Channel Islands are still called "poukelayes." Possibly in prehistoric ages when the hut-dwellings, stone-circles and avenues on the Dartmoor above were inhabited and the scenes of unknown rites, this strange-looking stone may also have been worshipped, and regarded with an awe that reached far into Christian times, and is hardly yet extinct. The names of many places may also contain traces of stone-worship. In France

that at first the Egyptian temples were without images—ἄεῖραοι. The Tipperah hill-tribes in Bengal, who now worship the Hindu gods, say that before the reign of the legendary king Trilochun, they worshipped no idols, but objects of nature, such as stones and trees; and amongst the Oraons, another Bengal forest-tribe, Chanda is the god of the chase always invoked before hunting. Any piece of rock, or stone, or excrescence on a rock, serves to represent this deity; for the Oraons must have something material to worship, and their most popular demon, Darha, is represented by a ploughshare set up on an altar.—(Col. Dalton).

several towns bear the name of Pierre Fiche, which means an unwrought tall stone—a menhir.

One source of the veneration paid to stones may have arisen from their use as land-marks or memorials of agreements—"stones of witness"—such as the pillar set up in witness of the compact made between Jacob and Laban, along with the heaps, in the passage of Genesis already quoted. Such, too, was the "Great stone" set up by Joshua under an oak before the Sanctuary of the Lord, "to be as witness unto us," and the Ebenezer stone set up by Samuel between Mizpeh and Shen. Herodotus relates that when two Arabians made a compact, they cut the inside of their hands with a sharp stone and rubbed the blood upon seven stones ranged between them. Amongst the Khasia hill-tribes of India, "when there was war between Cherra and Mausmai, they made peace, swore to it, and erected a stone as a witness."—Mausmai = Oath-stone. A promise made on the Odin-stone in the Orkneys was within living memory the most inviolable of engagements. On passing the Jordan 12 stones were set up in the midst of the river and 12 in Gilgal, as a memorial, by command of Joshua, and it is possible that "they are there unto this day." In Ramnad, Southern India, there are nine stones on the sea-shore, said to have been planted by Rama on his expedition to Ceylon to represent the planets, and worshipped by him; they are emblems of prosperity to the country; any of them breaking off or crumbling at the top is an omen of disaster. It is not difficult to conceive how stones placed for any of the purposes just enumerated would attract sentiments of awe and veneration.* Oil would be poured upon them, and they would become anointed stones, such as may be seen to-day by every road-side in India.† Jacob both after his dream, and after he had talked with God, set up a stone and poured oil thereon. Theophrastus in his "Characteristics of a Superstitious Man," says, "if at crossings he should see an anointed stone, he falls upon his knees, pours oil upon it, and worships it." Lucian, too, in his "Pseudomantis," says of Ruti-

* Such sentiments would be increased when, as would not unfrequently happen, magical or healing virtues became attributed to the stones. Geoffrey of Monmouth, in a well-known passage, tells a legend that when Aurelius consulted Merlin as to what monument should be raised to the Britons treacherously massacred by Hengist, the enchanter replied, "You would have the giant's dance brought from Ireland! Do not, Lord king, vainly excite laughter; those stones are magical, and virtuous in healing in many ways; giants brought them of old from furthest Africa; they heal sickness and cure wounds; every stone there has its own healing power." In France, even to-day, women are said to sit on dolmens to cure sterility. In the West of England, almost up to recent times, children were passed through holed stones for various diseases; and the Welsh Triads affirm that "on the stones of Gwiddon-Ganhebon one could read the arts and sciences of the world."

† This consecration by oil is in India termed Nivēdyam.

lianus, that he was an excellent man and of noted valour in war, but very superstitious in religious matters, so that if he saw an anointed stone anywhere he would fall down and adore and offer petitions to it. These passages show that rough stones were commonly venerated in classic times. In France to this day the inhabitants of the Haute-Loire are said to anoint with oil the "peyro martino" of Livernon (a dolmen figured in "Rude Stone Monuments," p. 347), as in ancient times. Anointing rocks and stones with oil turns them black, and this may be one reason for the particular veneration paid to *black* stones, as well as that being the usual colour of aerolites, the fall of which on a large scale is a startling phenomenon, certain to excite strong superstitious awe amongst all primitive and ignorant peoples.* Captain R. J. Burton, after kissing and handling the famous Black Stone of Mecca, was convinced it is an aerolite, and so probably was the Phœnician Image of the Sun, called Elagabalom, which Herodian says was worshipped by all the neighbouring kings, and was a large black cone-shaped stone said to have fallen from the sky. It is curious that the Ayeen Akbari (Life and Deeds of the Emperor Akbar) mentions a pillar of black stone, 80 cubits high, as the most sacred object before the Temple of the Sun at Jaganâth, and the idol is described there by Captain Hamilton as a huge black pyramidal stone.† The ancients called aerolites *Boetylia*, and held them mythically to be the stones palmed upon Saturn by Rhea for his children, and vomited up by him. Hesiod in his Theogony mentions a famous sacred stone in Pytho under the heights of Parnassus, said to have been the stone palmed upon Saturn for Jupiter, and to have been planted in Pytho by the latter for a wonder to all men, probably some legend of a great meteorite. Other instances of black stone worship are the idol of the mysterious Siaposh in Central Asia, which Mr. Masson describes as "an erect image of black or dark coloured stone the size of a man." The Hermansäule of the Germans seems to have been in its earliest form a tall black stone. Captain J. Cope, who travelled through Western India in 1758, describes a ceremony he saw in "a certain grove on the coast of Canara, when several thousands of

* In February, 1857, at noon, two aerolites fell in the district of Madura, Madras Presidency; they fell about three miles apart, with a tremendous reverberation like prolonged thunder, but much louder, that was heard at a distance of 40 miles; one weighed 37 lbs., the other was four times larger; they struck cultivated ground and buried themselves more than two feet in the earth: one of them is now in the British Museum. The natives in the neighbourhood, when they fell, dropped on their faces and remained long prostrate with fear; afterwards great crowds came and worshipped them. In some temples in Bengal the lingam-idol is said to be a meteoric stone.

† Antonio de Solis relates that a large black stone was placed before the idol on the pyramid of the great Mexican Sun-temple.

people assembled, and in the middle of the grove was placed a black stone of 300 or 400 lbs. weight, without any designed shape, but bedaubed with red lead mixed with oil. A little earthen pot of fire was placed before the stone, and a girl about ten years of age to attend it." This was probably Vetāl, an aboriginal Bhuta or Demon; his usual image is a rough pyramidal stone from 2 to 4 feet high, generally under a tree on the east side, and sometimes surrounded by a circle of stones which typify his retinue of attendant demons. It has been previously stated that the Râjmahal hill-tribes worship Raxi under the form of a black stone, and Col. Dalton (*Ethnology of Bengal*) reports that when a man-eating tiger infests the village, or a bad epidemic breaks out, Raxi has to be sought out, and with the aid of a priest or diviner, a black stone, which represents the god, is found, and set up under a large tree. Châl or Châlnâd is similarly sought when any calamity befalls a village, and he also is found as a black stone, and set up under a Mukmum tree.

At the present day the most sacred amulets among the Hindus are the Sâlagrams, black, smooth, water-worn ammonites brought from the Gandak river in the Himalaya, and carried all over India; they are held to typify Vishnu and all the gods. The shepherds of Languedoc are said to carry black stones pierced with holes as an amulet to preserve their flocks from the rot.

Indeed, rude stone worship exists to-day perhaps to an unsuspected extent. Mr. Masson relates that in the temple dedicated to the goddess at the foot of the Koh Assa Mahi (Hill of the Great Mother) near Cabul, "a huge stone is the object of adoration." Major Macpherson states that "a special deity of the Khonds is a stone without shape, and weighing about 75 lbs." Nadzu Pennu, the village god, and Koda Pennu, the horse god, are represented also simply by stones placed under a large tree. Southwards, in the Peninsula, a large proportion of the agricultural and forest castes represent their deities by rough stones. One instance is noteworthy as showing on what occasions, and how easily, a new god may be set up amongst a primitive people. The late Mr. Breeks in his "*Wild Tribes of the Nilagiri Hills*," relates that a few years ago the Kôtas, one of the tribes of the Nilagiri Hills, were visited by a virulent disease which carried off so many of them that the village was abandoned. As they are the ironsmiths of that region, their neighbours, the Badagas, probably found their absence inconvenient, and a Badaga passing one evening by the deserted village, received a mysterious communication from something in the shape of a tiger, that unless the Kôtas returned the disease would spread; so they returned. Now their only previous deities were Kâmatârâya and his wife, each represented by a thin silver plate, but now they set

up a new god, an upright stone, and called it Māgāli, whose special office was to protect them from the disease, which did not appear again; and every year since goats and fowls are sacrificed to Māgāli. It has been already mentioned how another tribe, the Irulas, worship Rangaswami under the figure of an upright stone in a circle on the easternmost Nilgiri peak; they too of late years have added another circle and stone to the old temple, and call the latter Great, and the former Little, Rangaswami. Lower on the mountain slopes the still wilder Kurumbas worship a rough round stone under the name of Hiria Deva, = Old God, setting it up either in a cave or irregular circle. I will add a few more instances of existing stone-worship in those provinces most familiar to me. In Mysore when a new village is founded, the principal Gowda, or head-man, places a large stone in or near the site, called Kūrūvu Kallu, or Calf-stone, this represents the tutelary village god, and receives annual worship and offerings. In the same province the Goalār, or herdsmen, have a small temple containing two shapeless stones termed Jinjappa and Rāmappa. The Beidāru, who are cultivators, worship a rude shapeless stone placed on a cairn, or sometimes in a cavity of a rock. The iron-miners have a deity named Mūti Rāya, = Pearl King, a shapeless stone placed in an open-sided dolmen about 6 feet square. Another caste that cultivates betel-leaf gardens has two deities, Sidday devāru, a stone set up in a betel-vine garden, and Urukāti, a stone placed in a wood.

In Malabar the goddess of the salt-makers is Nidamah Bhagavati, a stone placed in a cocoa-leaf hut; that of the Poliards, a degraded slave-caste, is Paradēvata, a rough stone placed on a mound in the open air. The goddess of the Pariahs is a stone placed in a small hut, called Māriti; and of the Kurumbālar, a stone named Madya dēvam, planted on a heap of pebbles. In Coimbatore the Pāllies, a numerous caste, have two special deities, Mānār Swāmi and Pachamma, both large stones; the Maleiārāsar, = Hill-kings, commonly called Mulsers, of the Anamalay and Paulghaut jungles, have a god named Mallang, who is a stone surrounded by a low wall, and the Kādars, = forest men, who live in the depths of the forests, have a male god Mudevīran, and two female deities, Pey-kōti Amma and Kali Amma, all represented by rude stones placed in small huts. All these obscure deities receive bloody sacrifices, *i.e.*, offerings of fowls, goats, or sheep,* but it must not

* Mr. Horne, however, informed me that in Himalayan villages a stone is set up as a pillar in the centre, the top smeared with whitewash, and five finger-marks of red ochre laid on, and on this flowers are offered for the prosperity of the field.

be supposed that they absorb the worship of the several castes and tribes enumerated ; many worship the ordinary Hindu gods as well. The instances just given are but from a very small part of India, and the list might doubtless be immensely increased, proving the wide prevalence of stone-worship there to-day. Mr. Hunter in his work "Orissa," vol. i, p. 95, observes of this two-fold worship, "At the present hour in every hamlet of Orissa the common people have their shapeless stone or block, which they adore with simple rites in the open air ; while side by side with it is a temple to one of the Aryan gods, with its carved image and elaborate rites." So in the early ages in Europe, the rude stones of popular worship doubtless stood long by the first Christian churches. In our stage of intellectual advancement it is difficult to put ourselves in that mental posture which could directly and literally worship "stocks and stones." One may conceive how prayers and adoration might be offered to the statues that embodied the ideals of majesty, intellect, and beauty in old Greece, and imagine the stern unimpressionable Roman Consul shrinking abashed before the Zeus of Phidias, in Elis, exclaiming that he beheld God ! We know how widely over Europe images are regarded with feelings approaching adoration, and can conceive how the hideous idols of the South Seas inspire a worship prompted by superstitious dread, but it does not seem so easy to comprehend how mere rude stones—shapeless masses and splinters of rock—could be taken to symbolise, or to be, a deity. Animals, terrible, useful or beautiful, trees, flowers, striking natural features, might suggest ideas of awe or veneration, and indeed vestiges thereof survive amongst civilised peoples, as well as amongst those tribes that most nearly represent the prehistoric races, who were presumably alive to the same influences. Still it is hard to think why dull lumps of stone and rock should be chosen as emblems of any supernatural power, yet the fact remains that a collection of lumps and splinters of stone by the wayside suffices for Hindu worship to-day, and might have sufficed for the men of the stone ages.*

* Another cause of stone-worship may be the influence of old legends. Amongst the feats of the god Siva, it is recorded that being angry with the six nurses of his son, Kartikeya, because they were careless in learning the eight forms of prayer, he laid on them a malediction "that they should become large stones under the Banyan tree near Madura, for 1,000 years." Whilst undergoing this penance, they were worshipped as evidences of the power of the god. Megaliths in Europe are often popularly held to be transformed men ; e.g., the Rollright-stones and the Cornish hurlers. Again, at the foot of a mountain in Travancore there stood a magnificent and gigantic timber tree : four men with outstretched arms could not compass its trunk. Several rude stones of no great size placed at its base had been worshipped from time immemorial and supposed to represent forest-gods who dwell in its branches. It was the blood and ashes and other

There could be nothing in this of that nature-worship so largely developed in modern poetry and philosophy, of which Wordsworth has been the great hierophant. Neither living savages nor men of the flint days can be thought of as finding sermons in stones, or thoughts that lie too deep for tears in a flower or tree; and Kingsley's apostrophe—

I cannot tell what ye say, red rocks!
 I cannot tell what ye say,
 But I know that in you too a spirit doth dwell,
 And a word in you this day!

would be taken by them in a very different sense. Such ideas indeed are the latest result of culture; and to a higher plane of mental perception and reflection also would seem to belong that idea of generation, symbolised in so many ancient myths and religions by the pillar, spire, lingam, circle, cave, &c., of which rough stones might be the readiest emblems, and so become sacred.

Were any clue possible to the dark labyrinth of prehistoric thought, it might be looked for amongst the most secluded, uncultivated races, such as are described by the Rev. W. W. Gill ("Myths and Songs from the South Pacific"), in Mangaia, the most secluded of the Society Islands. One idea pervading Mangaiian mythology is that earthly objects are but the material bodies of spiritual powers or originals, so that if an axe cleaves or a club kills, it is because demons are invisibly present in them; and the idea extends to supposing that all ordinary inert objects have spiritual doubles, or ghosts.* Thus when Indians bury a warrior with all his weapons, it is with the idea that the ghosts of the weapons may go with his to the Spirit-land. This helps us to conceive how tribes in India to-day can see deities in shapeless stones; so may it have been with men in the unknown prehistoric past, in whose graves, too, weapons are so frequently found, deposited perhaps with the same idea. Another

manure deposited there on sacrificial and festival occasions that had nourished and so wonderfully enlarged this colossal tree. The missionaries wished to purchase it for the erection of a large chapel at Neyur, and after obtaining permission, were obliged to call Christian workmen from a long distance to cut it down, all the mountaineers refusing to assist, and viewing its felling with great alarm from a distance. All the woodwork of the new chapel was made from this single tree, and the forest-people afterwards listened more readily to the preaching of the missionaries. An occurrence like this in recent years probably represents many similar passages in the early centuries of Christianity in Europe.

* The idea underlying the primitive Vedic religion is that material objects have a spiritual as well as a physical potency, and may thence be addressed with prayer and hymns. So, too, Swedenborg's famous Doctrine of Correspondencies declares that all physical things are but the types of things existing in the spiritual world. Even so rude a people as the Karens of Chittagong, have an analogous idea; every object amongst them has its *kelah*, or genius; if the rice crop is unpromising, its *kelah* has to be invoked.

aspect of the same primeval way of thinking seems to exist in the Gauri, the most popular and universally observed festival, except one, in India. It is held in the beginning of September, when people of all castes and classes, from the Brahman to the Pariah, offer prayers and sacrifices to the tools and implements used in their several professions and crafts. Learned Brahmans and well educated clerks and officials put together their writing materials, paper or palm-leaves, pens, stylus, and ink; the merchant and bazaar man their account books and scales; the cultivator his plough, hoe, and harrow; the carpenter and smith their tools; the weaver his loom and shuttles; the tailor his needles, &c.; the barber his razors and hone; the women their baskets, rice-pounders, pots, and household implements, and placing flowers and incense, prostrate themselves at length before the objects of their daily use, with thanks for having afforded the means of living, and prayers that they will continue to do so. This worship is offered directly to the things themselves, and not to any deities symbolised,* and seems to contain the germs of the South Sea theory, and suggest how worship can be paid to "stocks and stones," whether in prehistoric or present times. More than the men of Athens, the Hindoos are *δαιμονισμένοι* (Acts xvii, 22) in the true sense of greatly prone to recognise the presence of supernatural powers; and men versed in English literature, in law, and moral philosophy can roll up little balls of cow dung and clay, give them divine names, worship them, and toss them aside. This disposition may have begun far back in prehistoric times. Some have held that religious sentiment was then a blank, arguing from certain tribes among whom travellers have reported no appearance of religion existed, but it is always questionable whether they had penetrated all the modes of thought about them. That sentiment must have originated some time, perhaps not very long after passing from Darwin's tailed arboreal stage, and rough stones might have been, and continued to be, as now amongst so many primitive tribes, the readiest symbols of beings imagined out of themselves. Sir John Lubbock ("Origin of Civilisation," p. 205) thinks that stone-worship is "merely a form of that indiscriminate worship which characterises the human mind in a particular phase of development." This, however, hardly explains why rough stones should be so generally selected amongst all natural objects for adoration, but all Sir John Lubbock's pages on the worship of stones demand the highest consideration.

Before quitting this subject, a word may in conclusion be said upon that oldest of historic rough stones now in our midst—that

* There are also two ceremonies conducted by women, in which metal and earthen vessels are converted into gods, and worshipped as such.

Stone of Destiny brought in days beyond the ken of history from Spain to Ireland as a talisman of national welfare. On it the ancient Irish Kings were crowned, when, if on being smitten it sent forth a clear ringing sound, the ceremony was auspicious. Carried to Scotland, it was long the palladium with which national independence was bound up, and brought thence in triumph, as the most certain token of victory it has for six hundred years rested beneath the Coronation chair at Westminster. The consideration and sacredness attaching to this famous stone in its various shrines and changes are almost a measure of the survival of stone-worship in the West. Were it lost or dragged from its present sanctuary, there would not be the same wide popular dismay that followed its last removals, but I think few here present would not experience a feeling deeper than simple antiquarian regret.

DISCUSSION.

The PRESIDENT observed that researches such as those of Mr. Walhouse on megalithic structures and stone worship of modern times were well calculated to throw light on the monuments and religious practices of far earlier times. He was inclined to think that some of the stones which were the subject of veneration at a remote date might have been of meteoric origin. The so-called "image" which fell down from Jupiter and jointly with Diana, was the subject of worship at Ephesus, might well have been a meteorite. He thought that the sites of many Christian churches had been determined by the spot where they were erected being already deemed sacred; and the large blocks of stone which were built into the wall of the church as at Le Mans, or lay just outside it as at Trèves, or were still erect in the close vicinity as at Rudstone in Yorkshire, might perhaps be the original rude stone idols which had hallowed the sites.

Mr. HYDE CLARKE said Mr. Walhouse had made a reference which was perhaps connected with a prehistoric belief which must have been widely distributed. In the Guarani language of Brazil and Paraguay there were separate words for what had life or soul, and what was dead. Thus a distinction was made between the head of a living and of a dead man or animal, and so throughout. Stones would receive worship on two grounds: first, divine stones or meteorites falling from heaven; second, stones as being representatives of natural organs. Mr. Walhouse had well illustrated the parallels between the stone gods of Greece and India. On examining Mr. Ferguson's stone monuments, he had been surprised to find the small evidence of astronomical or symbolical numbers, and this he considered was consequent on the paucity of our recorded information on the subject.

Mr. LEWIS thought a distinction should be drawn between such allignments of stones as those of Carnac and Ashdown Park, and

mere double lines or avenues, such as exist on Dartmoor and elsewhere. Sacrifices were offered before lines of stones in Southern India, and similar lines were erected as memorials in Northern India, and they might therefore suppose that the European alignments were erected for either purpose, as there was every reason to believe that they were not sepulchral. The two slabs with one across forming a shrine or canopy for an image appeared to resemble Kit's Coty House without the central stone, which occupied the place of the image, and it had often struck him that that stone being rougher than those which surrounded and covered it, might have been held in greater respect. The direction to the Jews not to hew the stones used for their altar was well known, and the same idea might have prevailed elsewhere. There were several instances of non-sepulchral dolmens in England besides those mentioned by Mr. Walhouse, and three upright stones, arranged like those of Kit's Coty House, but without a capstone, were found in connection with some of the larger circles. Referring to the black stones pierced with holes mentioned by Mr. Walhouse, Mr. Lewis said some people in England still preserved stones with naturally formed holes, and called them lucky stones; and referring to some remarks by Colonel Lane Fox, he thought he had recently seen it stated that the custom of attaching pieces of rag to certain objects prevailed in Russia. He thought Mr. Walhouse's paper a most useful one, and that the information about the dolmens used as repositories for sacred objects was particularly valuable.

Mr. MOGGRIDGE said, I could have wished to have gone more fully into the subjects treated of in the very able paper which has just been read, and the remarks that have been made thereon; but will confine myself to two points—1st, the hanging of rags on bushes near to some spring or shrine supposed to be of potent power. These I believe to be votive offerings, testifying gratitude for cures whereby those rags were no longer required for dressing the parts affected. This custom prevails extensively, not only in England and Wales, but also on the continent, even down to the shores of the Mediterranean.—2ndly, upright stones. These, whether monumental or not, frequently became objects of worship. On some of them may be seen the figure of a cross, cut by the early Christians, in order that the heathens, while paying their accustomed adoration to the *maenhir*, might, in fact, be worshipping the symbol of our faith: a pious fraud—but manifesting a kindly feeling.

Mr. WALHOUSE in answer to the President expressed his opinion that the red marks often placed in India on sacred stones were analogous to the caste marks on the foreheads of Hindus. Every one amongst them must have some mark on his forehead. To have it bare is a sign of being in mourning or unclean, and it is disrespectful to appear so in company. Hence all images of the gods have the forehead carefully adorned with caste-marks, and the custom is extended to daubing stones, or anything sacred, with red. Colonel Forbes Leslie, however (*Early Races of Scotland*, ii, 464),

thinks the red marks are intended to represent blood. The author, with respect to tying rags to a bush at a spot where a man had been killed by wild beasts, said he had only met with two or three instances, and believed that the rags were tied to a bush in lieu of stones added to the stone-heap raised at first, after loose stones had become scarce around. In answer to Mr. Lewis, he said that he remembered no outlying stone near the circle described by him on the Nilgiri Hills, but there is a smaller circle at a short distance on the eastern side.

Col. Lane Fox, Mr. Jeremiah and others offered some remarks.

Major Wisden exhibited some bronze antiquities lately discovered in the neighbourhood of Worthing, consisting of palstaves, socket-celts, and pieces of metal. The palstaves, 29 in number, were looped, and those exhibited were without ornamentation on the blades, and in form much like Evans's *Petit Album*, Pl. IV, No. 3. The socket-celts, 12 in number, were of the type Pl. V, No. 2, and the metal had been cast in cakes, which had subsequently been broken into pieces. The whole had been buried in an urn of burnt clay intermixed with coarse sand, or possibly flint, which had been pounded into small angular fragments. The urn was too much broken for its shape to be recognisable.

The President remarked that the objects probably belonged to the close of the bronze period in this country.

The meeting then separated.

MARCH 13TH, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same :—

FOR THE LIBRARY.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXV, No. 177.

From the SOCIETY.—Jahrbuch der K. K. Geologischen Reichsanstalt. Vol. XXVI, No. 4; Verhandlungen der K. K. Geologischen Reichsanstalt. Nos. 14—16.

From the SOCIETY.—Mittheilungen der Anthropologischen Gesellschaft in Wien. Vol. VI, Nos. 6—10.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. Vol. IV, No. 28.

From JOHN EVANS, Esq., F.R.S.—Through Bosnia and the Herzegovina on foot during the Insurrection. By A. J. Evans, B.A., F.S.A.

Petit Album de l'Age du Bronze en Grande Bretagne. By John Evans, F.R.S.

From the SOCIETY.—Proceedings of the Royal Geographical Society.

From the EDITOR.—Revue Scientifique. Nos. 36 and 37, 1876.

From the AUTHOR.—Smoking. By Dr. J. C. Murray.

From the EDITOR.—Nature (to date).

The President exhibited a bronze socket celt from Italy of the usual form, but still retaining its original wooden handle, which had been preserved in consequence of its having been completely covered with thin plates of bronze. The entire length of the handle is about 10 inches. It is somewhat curved, and the projecting branch, which goes into the socket of the celt, forms an angle with the handle of about 80°. At the end of the handle is a small loop, as if for the insertion of a ring or string by which to suspend it. The wood appears to be oak. This hatchet, with another like it, was found in an urn at Chiusi, with a long fibula of silver, a scarabæus, and several bronze plates, each with a "fylfot" cross upon it, and probably forming part of a girdle. These are now in the Etruscan Museum at Florence.

Captain DILLON exhibited some flint arrow heads, tools, &c., from Ditchley, Oxon.

The President made some observations on them.

Thanks were returned to the exhibitors of the above.

Mr. HYDE CLARKE then read a paper on the Himalayan Origin of the Magyars.

HIMALAYAN ORIGIN and CONNECTION of the MAGYAR and UGRIAN. By HYDE CLARKE, Vice-President of the Anthropological Institute.

THE Ugrian languages have become of the more importance in the advance of comparative philology on account of the relations between them and the Akkad or Sumerian cuneiform developed by Norris, Oppert, Lenormant, Sayce, Sayous, &c.

My opinion still is that the relationship is less between Akkad and Ugrian, strictly speaking, than among Akkad, Ugrian, and many other prehistoric languages. The order to which the

Akkad more immediately belongs has been named by me Sumerian or Khita-Peruvian, and is dealt with in my work on Prehistoric and Comparative Philology, and in my last book on Khita and Khita-Peruvian.* More or less belonging to this order are Etruscan, Lydian, Phrygian, the Georgian, many languages of the Indo-Chinese peninsula, the Aymara and Quichua of Peru, the Maya of Yucatan. The Circassian and languages of Northern Mexico are in relation with this class.

The determination of the philological and historical relations of Ugrian is, it will be seen, a problem of considerable interest.

In this respect the object of the present paper is to propose an extension of the area of Ugrian, in districts the more attractive to the anthropologist, because they embrace High Asia and the Himalayas.

Thus the Ugrian languages are brought in contact with one great centre, which is by some regarded as the centre of the human race and the cradle of civilization,† but to my mind it is only one of several centres from which the migrations of the human race have taken place, as detailed in my Comparative Philology.

If the Ugrian languages include the cultivated Magyar and the epic Fin, yet they also embrace those of some of the lowest tribes of Samoyeds, Ostiaks, and Lapps. This is one reason which leads me greatly to hesitate before assigning to the Ugrian the Akkad, as Lenormant is so strongly inclined to do, or the Etruscan, as the Rev. Isaac Taylor latterly suggested.

In India, as within the Arctic Circle, the Ugrian order is found in close contact and relation with languages which are those of savages, and are prehistoric.

There the relations of the Ugrian order are with the order which includes East Nepaul, and the languages round to the Assam border (and, indeed, to Arracan see Forbes), and including some scattered languages, the Bodo, Borro, Dhimal, and Kachari and the Abor and Sibsagur Miri.

The true Ugrian of this region constitutes a Ugro-Nepaulese class, which may be that of a possible Tibeto-Ugrian sub-kingdom.

The Ugrian order, as here considered, includes the following families :—

Samoyed,
Ostiak,
Magyar,

* See also, "On Khita, Canaanite, Sumerian, Etruscan, &c.," by me in Transactions of the Royal Historical Society for this year.

† See the various works of Ernest von Bunsen for the latest developments of this system.

Mordwin and Cheremis,
Votjak,
Finnic,
Lap.

The chief Himalayan congeners are in East Nepaul.

These languages are classed by Mr. Bryan Hodgson as the Kiranti group, but the most distinct member is the Chourasya. In Dr. W. W. Hunter's Non-Aryan Dictionary they are thrown together under East Nepaul, and this which is also under Mr. Hodgson's auspices is very convenient.

In East Nepaul are—

Rodong,
Runghenbung,
Chhingtangya,
Nachhering,
Waling,
Yakha.
Chourasya,
Kulungya,
Thulungya,
Bahinga,
Lohorong,
Lambichhong,
Balali,
Sangpang,
Dumi,
Khaling,
Dungmali,
Kiranti.

On the Chinese frontier and Tibet are languages which more or less assimilate, but are of weaker affinities for the Ugrian than those of East Nepaul—

Takpa,
Manyak.

In Nepaul (east to west) are others in the same condition—

Sunwar,
Gurung,
Moormi,
Magar,
Newar.

Among the Broken Tribes of Nepaul the language which most assimilates, but not uniformly, is—

Vayu.

Among the languages of north-east Nepal are some which present an approximation, but are not of the same class. They include the prehistoric—

Bodo,
Borro,
Kachari,
Dhimal.

On the eastern frontier of Nepal are the languages of the Miri, more distant in their relation—

Abor,
Sibsagur.

For Arracan, see the Appendix.

The affinities of the Magyar and Fin are strongest for the languages of East Nepal, and those of Samoyed and Ostiak strongest for the lower tribes of the Bodo and Miri—a feature well worthy of the attention of the anthropologist and the philologist, more particularly because in physical characters the Laps and Samoyeds present diversities from the Fins and Magyars, and the Laps may be regarded as having acquired a Ugrian language after conquest. In this as in other cases the influence of the development of culture is more persistent than the physical influence of race.

The Vayu have a tradition that their people were anciently of very great importance (Hodgson).

In consequence of the prehistoric affinities disclosed, it has appeared to me useful to carry out a wider geographical investigation.

The Bodo, the Garo, the Dhimal, if they present some features identical with Finnic, contain more words of affinity with the African languages. In truth, however, the whole of the Himalayan languages present these marks of affinity, as do what are called the Altaic languages, and also the Javanese.

The relations between the languages of India and Indo China and those of Africa will, however be dealt with in detail on another occasion. It suffices to say that there is nothing in the African languages opposed to the possibility of a centre of human culture in the Himalayas. The varieties of the Himalayan languages are partly dependent on these African features, and it is more than possible that ruder tribes have been absorbed by more advanced Himalayans, conformably to what has taken place in the Caucasus, and apparently in northernmost Europe and Asia.

On the other hand the Basques and their Caucasian kinsmen

of allied speech, the Lesghians, and who are white, use languages still chiefly spoken by black races in Africa and India.*

In Africa there are strong vestiges of conformity of type with the Himalayo-Ugrian, particularly as to the roots for sun and fire, but unless the languages of the Gaboon should furnish further evidences of conformity, there is no evidence of identity.

The following languages of the Gaboon are to be named:—

Bayou.
Pati.
Kum.
Bagba.
Balu.
Bamon.
Ngoala.
Momenyah.
Papiah.
Puram.

The following are examples, and these can be multiplied.

Sun	..	..	nyam.
Fire	..	..	mu, mo.
Water	..	..	usi, uzi.
Tooth	..	..	sou, aso.
Mouth	..	..	nasu.

It may be observed that many tribal names are common to the two regions of India and of Africa. Then much of what is said as to language applies of necessity to mythology.

Among the American languages I have not been able to identify any congener of the Ugrian, saving the question of the Akkad.

The few roots which appear to conform are probably derived from the earlier stocks of languages, from which the Ugro-Nepaul languages have themselves been developed.

Even with regard to the Vasco-Kolarian languages, I am still in the same position. There is, however, in many North American languages sufficient to indicate their common descent from the prehistoric stocks, but while I can identify in America Agaw congeners, I cannot determine those of Vasco-Kolarian and Ugrian. This appears unlikely to represent the real facts, because, taking into account the position of these two families in Europe, Asia, and Africa, it appears unlikely they did not send migrations into the other hemisphere, when the migrations of the Agaws and of the later Sumerians are so distinctly marked.

On the other hand there is no decided Ugrian language in

* See further on, and also "Prehistoric Comparative Philology," p.!

Africa, and there are many appearances that the Ugrian migrations in western Asia and Europe have been comparatively late, and also that they may have proceeded from Central Asia north and west.

As one object of this paper is to illustrate the subject of these migrations as affecting the Magyars, it will be well to consider this specific question.

The points of identity between Ugrian and East Nepaulese are in some cases striking.

The sun, day, and sky names :—

Nap, Ugrian Nam, Nepaul.

The names for man present repetitions of three types.

The words for eye illustrate each other, and the root appears to be a double one, with the syllables interchanged in each order.

Four types for mouth are to be recognised.

There are also four types of foot in contact.

A curious interchange of the types for bone and horn, in conformity with a practice of prehistoric philology or morphology, serves to earmark the order.

Horn, sarwi, Finnic. Bone, sarwa, E. Nepaul.

Wa, the type for water, is general in the Nepaul and Ugrian orders, but it is part of a double root, chu-wa or we-si (= wa-chu).

Earth has two types.

River has three types.

Mountain shows four types.

Stone in the form kawa, or kiwi, reduced to kwa and ko, also is found in both orders, and the other element of the double root is also recognisable.

Village has a common form.

House has also a common form, even amongst the rudest tribes.

Tree, leaf, and flower show each one type for recognition.

Salt and iron have allied forms.

The adjectives show many cases of similarity.

The numerals, although of common origin in system, show great discrepancies in the Himalayan orders, so that the separation might have taken place at an early period, and before the numbers were fixed, unless, as is equally possible, the main Ugrians derived their numbers, as is frequently found to be the case with regard to numerals, from some other race, under the influence of commerce or conquest.

In general the roots in the orders are double, and are of course liable to separation and distribution.

There is a general connection of the Ugro-Nepaul class with the Tibetan, and consequently with the Chinese and Indo-Chinese. It appears most likely that any influence of Tibetan on the Nepaul and other frontier orders has been posterior to the epoch of migration and separation, but the whole matter needs investigation in connection with Akkad and prehistoric inquiries. In the present state of our knowledge it is not yet possible to fix the prehistoric chronology, and as yet great obscurity rests on the true relations of Chinese, though so many scholars are now applying themselves to that language.

In this day we find three masses of the Ugrian class:—

The Nepaul or Himalayan.

The main Ugrian, reaching from Siberia to the Black Sea, and thence to Lapland and the Icy Ocean.

The Magyar in Hungary.

The Magyar has been apparently divided from the main Ugrian by the Slavonic migrations.

The main Ugrian body may have extended further westward, but must have been checked by the Celtic migrations, and particularly by the Germanic invasion, which drove it towards the north in Scandinavia.

There is little likelihood that there was any extension to the eastward or towards America. The races on that side are all earlier.

The consolidation of a Tibetan kingdom and of a Chinese kingdom would keep them off from the east, and perhaps was the operative cause of the separation of the northern Ugrians from the southern or main stock.

The rise of the Manchooks, as Scythians, of the Mughals (Mongols), would tend to perpetuate the separation and to prevent intercourse.

With regard to the southern border in India, the present narrow strip suggests that there might have been a southern extension, but when we consider the various races, anterior and subsequent, which have possessed India, the possibility of a Ugrian empire of India is diminished.

There were the Minkopies, the Agaws, the Kols, and Dravidians, and the Sumerians. Of these we have testimonies in India, but of the Ugrians none, though this negative evidence is no more conclusive than the negative evidence is conclusive as to the various races which evidently from time to time occupied these islands.

The relations of the Ugro-Nepaulese class have naturally come under the attention of philologists, and hence have arisen the

opinions as to a connection of the Ugrian with the Dravidian languages, and the formation of a Sub-Dravidian family. The valuable labours of Mr. Hodgson not only yielded the materials for the several Himalayan vocabularies, but led him in illustration of the affinities, to bring forward a mass of connections with other languages, including the so-called Turanian, which have provided material for the determination of the comparative grammar.*

The apparent and real affinities of Dravidian are chiefly dependent on the action of the same original causes on the languages, but these constitute no real connection. There is a distribution of roots under circumstances arising from culture or mythology, which affords no necessary proof of community of relationship of languages. There are the same influences affecting grammar, which forbid the assertion of identity of genealogy. Bishop Caldwell, in his new edition of the Dravidian grammar, does not appear to be desirous of annexing the Himalayan languages.

M. Lenormant, in his last work, "*La Langue Primitive de la Chaldée*, 1875," in various places, and particularly at p. 302, has, on the authority of M. Sayous, a learned author on Ugrian subjects, given many illustrations of what he has been led to believe are Ugrian affinities of Akkad.

A very cursory consideration by any competent prehistoric student is sufficient to show that they are as much prehistoric as they are Ugrian, unless they become Ugrian by their Himalayan relatives.

Akkad gud, *repose*. Compare gititea, *Kolarian*, gotolu, *Kassans*, Africa.

Akkad dama, *sleep*; dohomu, *Khond*.

Akkad sár, *line, row* = *straight*; sorichai, *Chentsu*; sirengi, *Bassa* (Africa).

Akkad mi, *dark, night*; ama, *Garó*, night; ami, *Burman*, do.; amma, *Kol*, do.; ma, *Chentsu*, do.

Akkad aria, *river*; garra, *Kolarian*; ngare, *Wolof*; kuramina, *Houssa*; kungoru, *Gadaba, India*.

Akkad dib, *dub, leaf*; lhaba, *Dhimal*; lapa, *Singpho*.

Akkad us, *blood*; azu, *Naga*; esi, *Bali*; kesu, *Rajmahali*.

Akkad lum, *bone*; elume, *Karnatika*.

Akkad du, *mouth*, is prehistoric.

Akkad khar, *ox*; karra, *Kolurian*, buffalo; goru, *Miri*, cow.

Akkad kisim, *ant*; gusala, *Gadaba, India*.

Akkad gum, *man*; kumi, *Kumi*; kame, *Soso* (Africa).

* See the republication of Mr. Hodgson's *Himalayan Researches* by Messrs. Trübner.

Akkad mulu, *man* ; male, *Rajmahali*.

Akkad nene, *mother* ; nana, *Miri* (a common prehistoric type).

Akkad unu, *dwelling* ; nu, *Bodo* ; hun, *Khamti*.

Akkad uru, *town* ; uru, *Kolarian* and *African*.

Akkad akku, *very great* ; okoko, *Egbele*, Africa.

Akkad kir, *speech* ; kurr, *Thochu*.

Akkad gan, *stand* ; ginna, *West Africa*.

Akkad gam, *crooked* ; kom, *Naga Laos* ; a common Himalayan word, also prehistoric.

It is a remarkable circumstance that a zealous Magyar, Coros de Csoma, should have devoted himself to the mission of discovering the origin of his people in the Himalayas. The time he spent in Tibetan studies brought him no fruits, but had his life been spared he would have found in East Nepaul the evidences he sought, and which, with his knowledge and learning, would have been turned to good account. He lies buried in the town of Darjeeling, amid the original lands of the Magyars and the Ugrians.

Among the tribes of Nepaul are to be counted the Magar, and it is quite within the compass of possibility that this is the true origin of Magyar or Madjyar. At all events there are many words alike in the two languages. Several tribal names have descended from prehistoric times, as that of the Agaw or Agua.

It is to be remarked that although some words are preserved in Magar and Magyar, yet, as might be expected, there are words better preserved in the tribes near the Magar.

The following are examples of words in Magar and Magyar :—

	Magar.	Magyar.
Sun	nam	nap
Day	namsin	nap
Mountain	danda	domb
Leaf	lha	levél
River	folyam	khola
Salt	cha	só
Hair	chham	hajak
Dog	chhyu	kutya
Goat	rha	kaüris
Bitter	khache	keseru
Crooked	gumche	görbe
Good	gyepche	jó
Hand'some	shecheja	szép
Sweet	jyuchó	édes
White	bocho	fehér
I	gna	én
He	hos	ő

	Magar.	Magyar.
Who, what ?	hi	ki
This	isene	ez
That	osene	az
Near	khwep	közol
Where ?	kulak	hol
Within	bhitar	be

Dr. Duka has pointed out to me a singular prehistoric peculiarity (see Sir J. Lubbock on relationship, *passim*) which affects Magyar, Magar, and Limbu, and that is the possession of the terms for elder and younger brother and sister :—

	Magyar.	Magar.	Limbu.
Elder brother	batya	dajee	phua
Younger brother. .	öcses (ötsch)	bhai	nusâa
Elder sister.	nene	dai	anna
Younger sister ..	hug	banai	nusâa pakwa

It will be noticed that the Magar word for younger brother is borrowed from Hindustan.

It is to be noted that the Hung, a branch of the Limbu (Prof. Friedrich Muller, on "Man," p. 352, Vienna, 1874), near the Magar tribe, may be the Huns, who took part in the invasion of Pannonia, and gave name to Hungary.

Mr. Howorth, who has dealt largely with the tribes of Asia, has entered on the question of the Khunzag of Caucasia, being the original of the Huns of Hungary, and this he has treated of in the Journal of the Anthropological Institute for 1874, p. 453; and at p. 472 will be found my own observations on this subject. The unfortunate Klaproth was one of those who first called attention to the Khunzag, as he was first in many researches. Among the Lesghians, Awars, and Khunzag of the Caucasus he detected undoubted proofs of the connection of language in the names of the chiefs.

The Lesghian languages are, however, not Ugrian, but according to my classification belong to another order, the Vasco-Kolarian, their affinities being with the Basque, Kol, of India, Houssa, of Africa. (See my "Prehistoric Comparative Philology," p. 13.)

Dr. Leitner, distinguished as a scholar on Magyar as on other subjects, in his treatment of Dardistan, has pointed out the importance of considering the tribe of the Hunza as possibly connected with the Huns, as founders of the Hungarian nation. It would be nothing inconsistent with the other facts here brought forward, that Hun tribes should be found in the Dardistan, though at present speaking an Aryan language. In fact we have to observe that the Avar language has been lost in Hungary.

My explanation of the invasion of Hungary is that in the Ugrian emigration from the Himalayas, Ugrian Huns had entered Caucasia.

It is to be noted that Brian Hodgson enumerates as a tribe of Magar, in Nepaul, the Kyapchaki. This may have given name to the well known Tartar kingdom, and become associated with Lesghian tribes in joint expeditions. The chiefs were perhaps Lesghians, and the main body of the soldiery Ugrian, recruited from various tribes. On the occupation of Hungary the Lesghian chiefs gradually died off, and the language of the majority prevailed. This will account for the union of Avars in the invasion and Huns, and for the people and language being now called Magyar.

The phenomena would then be correspondent to those of the invasion and occupation of Britain by the English.

If this view be correct, it opens up the subject of the Lesglaians, for, if these of old represented a warlike population, then they may have been connected with those movements to which the name of Pelasgian has been given, and which, it is supposed, led to settlements in many countries of the Asiatic and European Mediterranean. (See my "Prehistoric Comparative Philology," p 12.)

Whether in the Himalayas or in Caucasia the tribes referred to, it may be pointed out, are warlike. The foundation and maintenance of the kingdom of Nepul and the invasion of India sufficiently prove this. Such, too, were the assailants of the Roman empire, and the occupants of Pannonia, and such are the present inhabitants of Hungary.

I am indebted for corrections to Hungarian gentlemen, Dr. Leitner Bey, of the Lahore College; Mr. Bela Solymos; Dr. Duka, late of Darjeeling; and Captain Stab, Chargé d'Affaires of Guatemala, in Turkey.

APPENDIX.

COMPARATIVE VOCABULARY.

UGRO HIMALAYAN.

Sun, nap, Magyar.	nam, in E. Nepaul.
[numgy, Samoyed, Star].	
nai Ostiak.	
„ kuya, Samoyed.	nyima Tibetan.
„ [kundom, Finnic, moon].	chhowa, Nepaul.

Sun, syunk Vogul.	shan, Bodo.
shunda, Votiak.	[songger, E. Nepaul].
	san, Garo.
	sangdong, Kachari.
„ [kundom, Finnic, moon].	hwan, E. Nepaul.
Day, nap, Magyar.	nam, E. Nepaul.
	numa, Vayu.
„ yele, Samoyed.	khola, E. Nepaul.
	[wujgalo, E. Nepaul, [light].
	[jal, Pahri, light].
Moon, kuli, Koibal.	khlye, Chourasya, E. Nepaul.
„ ilio, Samoyed.	lya, la, E. Nepaul.
	ali, Dhimal.
„ yonkop, Vogul.	nokhabir, Bodo.
kov, Mordwin.	nakhaber, Kachari.
kou, Fin.	
kundoma, Fin.	
Light, walo, Finnic.	wujyale, E. Nepaul.
„ vilag, Magyar.	jalo, Pahri.
Star, numgoy, Samoyed.	nunggi, Pahri.
Sky, [nap, Magyar, sun].	nam, E. Nepaul.
„ nuont, Samoyed taiwas,	dwam, E. Nepaul.
Fin.	
„	
Fire, tuli, Finnic.	domur, Miri.
	[tali, Dhimal, moon]
Man, hassawa, Samoyed.	has } E. Nepaul.
„ huweri „	hash }
kasa „	hiwa, Bodo.
keiza „	
„ ihmene, Finnic.	mana }
ingemin „	mina }
innemine, Ostiak.	
„ mies, Finnic.	mis, E. Nepaul.
Eye, saeu, Samoyed.	visi, E. Nepaul.
silme, Finnic.	miksi „
sin, Votiak.	miksa „
shinsha, Cheremiz.	
szem, Finnic.	
sima, Samoyed.	michi, E. Nepaul.
	mas, „
	mash „
Tooth, all, Magyar.	gnalu, E. Nepaul.
„ penk, Ostiak.	ipang, Miri.
Mouth, szaj, Magyar.	syeu, E. Nepaul.
su Fin.	si „
„ kaukasi, Finnic.	khouga, Bodo.

Mouth, khurgo, Mordwin.	kuga, Kachari.
„ na, Samoyed.	igno, E. Nepaul.
	gnoch.
	nui, Dhimal.
	napang, Miri.
„ agma, Samoyed.	kwom, E. Nepaul.
„ wan, Siranian.	
Hair, bukka, Karelian.	tagna, E. Nepaul.
	[tuku, Miri, head].
	[taklo, E. Nepaul].
Head, paa, Finnic.	piya, E. Nepaul.
	bui.
	phutiri.
	puring, Dhimal.
Hand, kasi, Finn.	khar, E. Nepaul.
	khar, Dhimal.
kes, Magyar.	akhai, Bodo.
Foot, lat, Vogul.	lang, E. Nepaul.
lab, Magyar.	chaplap, Garo.
„ kok, Siranian.	khokhoi, Dhimal.
„ pilge, Mordwin.	philu, E. Nepaul.
„ yalka, Fin.	syal, E. Nepaul.
Blood, hem, Samoyed.	hi, E. Nepaul.
ki, „	chi, „
Skin, nakha, Finnic.	hokwa, E. Nepaul.
	kwakte „
	umhokwa „
bor, Magyar.	bigur, Bodo.
Bone, czontak, Magyar.	singga, E. Nepaul.
	usangga.
	sing, Kooch.
Horn, sarwi, Finnic.	[sarwa, E. Nepaul, bone].
szarv, Magyar.	[sarwa „ „
	[sarukwa „ „
	[harwa, Kooch „ „
	[hara, Dhimal „ „
Egg, toyas, Magyar.	dai, E. Nepaul.
	ti „
	tui, Dhimal.
	touchi, Garo.
	daudai, Bodo.
Water, wut, Cheremis.	wa, E. Nepaul.
vit, Vogul.	
bu, Samoyed.	
be, „	
wit, „	

Water, wa, Permian.	
wesi, Finnic.	assi, Miri.
viz, Magyar.	
River, yoha, Samoyed.	yowa, E. Nepaul.
„ as, Ostiak.	yo.
„ kymi, Finnic.	asie, Miri.
	koma, E. Nepaul.
	kwama.
	kawa.
	daima, Kachari.
Earth, ya, Samoyed.	ha, Bodo.
da	Garó.
	Kachari.
„ maa, Finnic.	among, Miri.
„ ma, Samoyed.	
„ mou, „	
Mountain, hegy, Magyar.	hajo, Bodo.
	„ Kachari.
„ domb, Magyar.	hachur, Garó.
„ sea, Samoyed.	danda, E. Nepaul.
	sani, E. Nepaul.
„ wuori, Finnic.	sanggu, „
„ bor, Samoyed.	bhuri, E. Nepaul.
	bhar, E. Nepaul.
	bour, „
	bro, „
Stone, kiwi, Finnic.	kawa, E. Nepaul.
„ ko, Magyar.	kwa.
„ tang, Samoyed.	lung, „
	long, Garó.
Eat, syon, Finnic.	chanin, E. Nepaul.
en, Magyar.	cho.
	gyuye.
Laugh, nauran, Finnic.	rende, E. Nepaul.
	riya.
	risini.
„ nevet, Magyar.	navir, Manyak.
Mouse. yar, Magyar.	daran, Thochu.
	enna, Sokpa.
	biya, E. Nepaul.
	bege, Limbu.
	yay, Gurung.
Be silent, waikenen, Finnic.	waitwaya, E. Nepaul.
	wayeb.
Speak, sanon, Finnic.	nēna, E. Nepaul.
	sogno.

Drink, juon, Finnic. in, Magyar	dung, E. Nepaul. dugna. tune. syanga, Brahmu. toin, Pahari. payam, E. Nepaul. bhanso. bini, Murmi. banyar, Manyak. tingni, Garo. dinesanche, Kachari. tanna, Nowgong. dinimeni, Deoria Chutia. thang-waynan, Talain. mangkokn, E. Nepaul. hamaye. minthe, Gyami. kallu, Darhi. kalla, Pahari. Kuswur. Tharo.
To-day, tanapana, Finnic.	ganap, Garo. ninap, Namsung. tel, E. Nepaul. tyal, " del, " kyal, " dulong, Miri. [falan, Manchoo]. khim, E. Nepaul. kam, " ekum, Miri. puwa, E. Nepaul. pu, "
To-morrow, huomenna, Finnic.	labam, E. Nepaul. laphowa, " lhava, Dhimal. puri, E. Nepaul. parr, Garo. yoksi, E. Nepaul. syang, Garo.
kolnap, Magyar.	
Village, falu, Magyar. kyla, Finnic.	
House, kamodo, Samoyed. muat, " mait " kat, Ostiak.	
Tree, puu, Finnic. pa, Magyar. pea, Samoyed.	
Leaf, level, Magyar.	
Flower, virag, Magyar.	
Salt, soak, Samoyed. si suol, Finnic. so, Magyar.	
Iron, yese, Samoyed.	sel, E. Nepaul.

Goat, kauris, Finnic.

Mosquito, szunyog, Magyar.

Hunger, ehseg, Magyar.

1, Ostiak, ogy.

Magyar, egy.

Cheremis, iktit.

Finnic, ak, yks.

Lap, akt.

2, Karelian, kaksi.

3, Ostiak, kholum.

Magyar, harom.

4, Finnic, nelya.

Magyar, negy.

6, Finnic, kuusi.

Ostiak, kut.

7, Finnic, seitseman.

Cheremis, shimit.

sini.

Mordwin, sisem.

8, Magyar, nyolc.

10, Finnic, kymmenen.

Mordwin, kamen.

20, Magyar, husz.

40, Magyar, negyven.

Bitter, Finnic, haikia.

Magyar, keseru.

gara, E. Nepaul.

sagoli, Miri.

songgon, Miri.

sago, E. Nepaul.

saka.

eukta, E. Nepaul.

itto.

aktai.

ikku.

yekko.

kat, Magyar.

ako, Miri.

atero.

yek, Pakhya.

kichchi, E. Nepaul.

hichchi.

sumchi, E. Nepaul.

aomko, Miri.

laya, E. Nepaul.

lichi.

lhyal.

tukchi E. Nepaul.

chhuning, Vayu.

choi, Kooch.

tuk, Serpa.

man. sini, Bodo.

sining, Garo.

man. shini, Kaehari.

nema, Sokpa,

kip, E. Nepaul.

kipu.

kongdyum.

kotdyum.

gis, Limbu.

kong-usang, E. Nepaul.

asim.

kwong asing.

naasang, E. Nepaul.

napung cholok, Vayu.

khika, E. Nepaul.

khiki.

khacho.

khacho, Magar.

		kasó, Sunwar.
		khako, Tibetan.
		ku, Chinese.
		khachim, Vayu.
		khakha, Dhimal.
		gakha, Bodo.
		kha, Burman.
White, fekete, Magyar.		kekema, E. Nepaul.
		kekete.
Fat, lihawa, Finnic.		leipa, E. Nepaul.
		lei.
köver, Magyar.		chhuwa, E. Nepaul.
		choba, Gurung and Murmi.
		charwa, Thochu.
		chopka, Dhimal.
Good, kywa, Finnic.		nuwo, E. Nepaul.
yo, Magyar.		nuhwa.
		noyu.
Green, wiheria, Finnic.		hariyo, E. Nepaul.
		" Pakhya.
		" Kusunda, &c.
		haryo, Darhi, &c.
Handsome, kaunis, Finnic.		kanni, E. Nepaul.
szep, Magyar.		sangnya, E. Nepaul.
		shecheja, Magar.
Hot, palawa, Finnic.		lepa, Murmi.
		lhap, Thaksya.
Raw, uusi, Finnic.		usuta, E. Nepaul.
		uchiva.
Red, veres, Magyar.		warawaba, E. Nepaul.
		hala.
		harra.
		wolkya, Gurung.
		bala, Murmi.
		wala, Thaksya.
punaònun, Finnic.		phana, E. Nepaul.
		phaya, Brahmú.
Ripe, kypsi, Finnic.		tupsako, E. Nepaul.
		tupsaha.
		tumea.
Little, waha, Finnic.		gahai, Bodo.
		gohai, Kachari.
kis	} Magyar.	chisma, E. Nepaul.
kicsi		kichem,
kicsiny		" kachhai, Gyarung.
		hocho, Pahri.

Sour, <i>savanju</i> , Magyar.	hocho, Denvar. khoso, Pahri. savo, E. Nepaul. sua. suyukha. sobu, Gurung. gapha, Bodo. sori, E. Nepaul. sorikha.
hapadu, Finnic. Straight, <i>suora</i> , Finnic.	*anka, E. Nepaul. ingka. ung. maha, Kuswar. ma, Pakhya. ang, Bodo and Garo. gna, Magar.
I, <i>mina</i> , Finnic. en, Magyar.	*ana, E. Nepaul. sanre, Gyarung. tai, Darhi, &c. ta, Pakhya. hana, E. Nepaul. chana, Thaksya. hami, Darhi, &c. " Kuswar. gni mo, Gurung. gno me, Gyarung. isena, Magyar. iti, Dhimal. imbe, Bodo. imara, Garo. tem, E. Nepaul. yam.
Thou, <i>sina</i> , Finnic. te, Magyar.	ye, E. Nepaul. yo. ye, Gurung.
He, <i>han</i> , Finnic.	*hegne, E. Nepaul.
We, <i>me</i> , Finnic. mi, Magyar.	*angna. ongo, Bodo. wotho, Takpa. onthu, Horpa. hadu, Gyarung. uta, Pakhya. uchi, Darhu. woti, Denwar. hudi, Brahmū. usho, Dhimal.
This, <i>ez</i> , Magyar.	
tama, Finnic.	
And, <i>ye</i> , Finnic.	
Yes, <i>igen</i> , Magyar.	
There, <i>ott</i> , Magyar.	

Where, kusa, Finnic.
hol, Magyar.

That, az, Magyar.

tuo, Finnic.

khoda, E. Nepaul.
heche, Dhimal.
kachi, Darhi, &c.
khache, Tibetan.
kalak, Magyar.
osena, Magyar.
issi, Kusunda.
uti, Dhimal.
obo, Bodo.
omara, Garo.
tya, E. Nepaul.
uthoi, Dhimal.
wotho, Takpa.
outha, Horpa.
wathi, Vayu.

This paper was first read at the British Association in 1875, but the reading of it before the Anthropological Institute was delayed until the 13th March, 1877. On the 20th March a short paper was read before the Royal Asiatic Society by Mr. G. W. Forbes, F.R.G.S., M.A.S., Bengal, under the title of Affinities of the Chepang and Kusundah Tribes of Nepaul with the Hill Tribes of Arracan.

By the courtesy of Mr. Forbes and of Mr. W. S. W. Vaux, Hon. Mem. Anthropol. Instit. and Sec. Royal Asiatic Society, I have seen this paper.

It deals with the eastern relations of the Chepang, Kusundah, Vayu, and Bhramu languages of the Nepaul, included in Hodgson's class of broken tribes. These are chiefly compared with languages of the Burman peninsula, Mru or Toung, Kyeng or Shou, Kami, Kumi, and Sak. Mr. Forbes classifies the Chepang, &c., as Lohitic or Tibeto-Burman with Naga and Karen.

His table includes indubitable resemblances, and is of value as connecting Chepang, &c., with Mru, and, possibly, with Sak, in conformity with what I have stated on this subject.

Among all these languages of the hills of India and of the Burman peninsula there are resemblances for a sufficient reason, because these languages all belong to the prehistoric epochs.

In consequence of this paper of Mr. Forbes's, I considered it desirable to make a new investigation, and I find that though it is true the Chepang, &c., resemble the Mru, yet that the Finnic affinities hold good. The classification of Chepang, &c., as Finnic, is maintained, but as a result of Mr. Forbes's researches the Finnic must be extended to include Mru.

Mr. Forbes has not examined the Naga and Karen languages. These have distinct African relations, more so than the Finnic,

and I therefore place them earlier in the relative chronology and development.

The following are a few examples of the connection of Finnic with Mru, &c. It may be observed that Magyar affords no conformities.

Blood, weri,	Finnic ;	wi, Chepang ;	wi, Mru.
Crow, wares,	"		wa-a, Mru.
Dog, koirā,	"	kwi, kui, Chepang ;	ta-kui, Mru.
Goat, kauris,	"	cha guri, Kuswar ;	ta-rau-a, Mru.
Horse, hopa,	"		sapu, Sak.
Name, nimi,	"	ming, Vayu ;	emi, Mru.
			nami, Khyeng.
Night, yo ;	"	ya, Chepang ;	ayan, Khyeng.
Bad, paha ;	"		poya, Khyeng.
Strike, puk ;	"		pok, Burmese.
To-day, tanapana,	"	ten, Chepang	tunap, Kyeug.

In following the subject up, I find that Finnic has borrowed in many cases from the Kolarian languages, a point in favour of placing the Kolarian earlier.

3, harom, Magyar, is connected with 6, harum, Madi.

4, nelja, Finnic, negi, Magyar, is connected with nal, Madi, nalu in Kolarian and Tamil, nakh, Uraon.

20, husz, Magyar, is connected with hissi, Kolarian.

100, sata, Finnic, and sean, Magyar, with Kolarian, sau.

He, han, Finnic, with huni, Santali.

We, me, Finnic, with mam, Madi, mamet, Gondi.

Ye, te, Finnic, with te, Chentsu.

His, hanen, Finnic, with hona, Gondi.

Yes, on, Finnic, with han, Kol.

Yesterday, eilen, Finnic, with hola, Kolarian.

It will be observed that with such facts it would be as consistent to class Akkad with Kolarian as with Ugrian.

It may be well to give some illustrations of the mode in which roots and words have been sorted out from the prehistoric period.

The same set of words, founded on the idea of Round, furnish words for sun and moon, ear and eye, face, egg, and also bean. Secondly, mouth, woman, &c., are connected with moon, and also cat, as in the Egyptian mythology.

This is best observed in Africa, where we have such common forms as mot, turo, so (sun, suku ; moon and ear, barba ; bean, vei), na, woro, tali, calu, caru, anya, nyam, nap, eyi, bela, kan, kono.

In Malay eye is mata ; ear, talinga ; egg, talor ; the roots being thus selected.

Two, thou, that, and there are connected.

A curious example of selection or sorting out is found in the Georgian—2, ori and Basque ; that, ori ; Lepcha, ore ; Madi, orou.

By another process I and eye are connected.

Thus by selection a great variety of languages is created from one stock of words, which are more particularly modified by the special selection of pronouns and numbers.

The difficulty of classification becomes, consequently, very great, because races have acted on others as the Kolarian on the Finnic, and on the Basque, and again been acted upon by conquering races, and by those with whom they are in commercial or religious intercourse.

DISCUSSION.

Mr. B. SOLYMOS—In reply to the remark that my countrymen, the Magyars, themselves seem to know but little about their origin, I beg to state, not as a scholar, but as a mere witness, that they are at least remarkably interested in the numerous and elaborate researches in this field made and being made by the members of their Academy of Sciences.

It is a popular tradition that their ancestors came across the Ural from Asia, and there were Magyar travellers, I believe, both in the last and in this century, who went to Asia specially for the purpose of ascertaining the birthplace of the race, with not much more result, however, than trophies of linguistic facts unknown before and bearing on the subject. Though no philologist myself, I recollect having been struck by all but identical words and sounds, in Hindustani and Magyar, of *kutta* and *kutya* for "dog," as well as by *bajusz* (moustache) and *kapu* (gate, &c.), which are the same both in Magyar and Persian.

It is a cherished hope, not only of its students, but of the nation at large, still to find out that origin ; and to illustrate that fond longing they bear to their mythical home, I will further mention that the news some years ago of the "English" comments and conjecture regarding the Babylonian cuneiform inscriptions referred to by Mr. Hyde Clarke, ran like a thrill through all parts of the country and all ranks of society, on the wings of their 250 newspapers and periodicals : for the popular mind, more or less educated by the men of science, clings also to this idea, that the Magyars, when they came to conquer their present country were an highly-civilised people, already in possession of letters of their own. They regret moreover the Vandalism of their first Christian zealots, who destroyed most of the monuments erected already in the new country.

M. BERTIN said : Thanks to the studies of several learned scholars during the last few years, the affinities of the Magyar language are well established now with the Finnic and Ugro-altaic tongues. In

comparative philological researches account must be taken of those affinities as well as of the internal changes of language shown in the Magyar documents since the twelfth century (the oldest known), and of the immixtion of foreign words, German, Slaves, &c. Now the problem of the origin can be fairly worked. I quite agree with Mr. Hyde Clarke's views as to this origin. The Magyars seem to have come into Europe with the Huns, and have left all along their road evidence of their passage. Besides, the cuneiform studies appear to show in the very direction pointed out by Mr. Hyde Clarke the existence of nations not far akin to the Magyars. As for what Mr. Hyde Clarke says of the common existence of roots in those Hymalayan countries and American, I can say that lately several French scholars endeavoured to establish an affinity between the central American dialects and the Basque. The latter having affinities with the Ugro-altaic languages would explain this common existence of roots in so far distant countries.

Mr. REES, the President, and others took part.

A copious and laborious paper on the classification of the non-Aryan languages of Metia was read at the last meeting of the Royal Asiatic Society by Mr. E. L. Brandreth, which I have, by his courtesy and that of Mr. Vaux, had the opportunity of perusing.

The following paper by the Rev. HECTOR MCLEAN was read by the Directors:—

THE SCOTTISH HIGHLAND LANGUAGE and PEOPLE. By HECTOR MCLEAN.

TRACES of the Keltic languages are to be found from Spain to Denmark, and from the west of Ireland to the Crimea; but of the ancient Keltic languages spoken on the continent, our knowledge is exceedingly meagre. The dividing of the ancient continental Kelts into two branches, the one Gadhelic, and the other Kimric, seems to me to be unsupported by a sufficiency of facts, and to lead to erroneous conclusions as regards Keltic tribes and peoples. To what erroneous conclusions a few test words may lead may be illustrated from the modern Keltic languages. The article in Cornish and Breton is nearer to the Gaelic than to the Welsh, n being the characteristic consonant in the former, and r in the latter. The name for "cresses" in Welsh is *berwr*, in Cornish and Breton it is *beler*, and in Gaelic *biolair*. The Gaelic *biolair* is nearer the Cornish and Breton

beler than the Welsh *berwr* is. Several such words could be chosen from these languages, and were they taken for tests, how false should the conclusions derived from them be? Gaelic would be brought nearer to Breton and Cornish than Welsh! In Manks the word for self is *hene*; in North Highland Gaelic *fhin* = *hene*, and in South Argyllshire it is *fhein* = *hane*; yet it would be a wrong conclusion to infer from this and a few other instances, that Manks was nearer to North Highland Gaelic than to Argyllshire. Mr. Skene has shown, in his first volume of "Celtic Scotland," to what fallacious conclusions the careless use of a few test words has led with respect to the geographical divisions of Gaelic and Kimric Scotland. The Keltic dialects of the east and south of Scotland have been lost; the same is the case with those of the north, middle, and south-east of England. Could these be recovered, probably the ancient language of Britain might be united without a break, and our present two branches of Kimric and Gaelic Kelts would constitute but the extreme varieties of one great continuous people. In the same manner were all the ancient continental Keltic dialects known, this people might, in all likelihood, be continued from the east and south of England, through several varieties, into Germany, Belgium, France, Spain, and Italy. Instead of trying to reduce those Keltic names that are to be found in ancient writings or the local names of Keltic origin that abound on the continent to two sister languages, the one Gadhelic and the other Kimric, it would, perhaps, be more judicious to conceive the ancient Keltic as consisting of numerous dialects varying gradually from the Baltic to the Mediterranean, and from the Alps to the west of Ireland.

Tacitus informs us that the language of the Gothini, a nation of Germany, was Gaulish, while that of the Estii, another nation situated further east, was nearer to the British than to the German. From the remarks of Tacitus, it may be inferred that the British, or perhaps some dialects of it, were allied to the language of the Estii, and differed somewhat from that of the Gauls, and that the language of the Estii was Keltic. Probably it was a Keltic dialect much mixed with Finnic and Teutonic in the time of Tacitus.

There is some reason for believing that a Kelto-Finnic people occupied the whole of Germany at one time, and that these were the brachycephalous people whose remains are found in the round barrows, while the old dolichocephalous race that preceded them are found interred in the long barrows. It is probable that the language of the brachycephalous people was Keltic, with a large element of Finnic in its vocabulary, and that that of the conquered race was Euskarian, and allied to the

mother tongue of the modern Basque. Much of the language of the conquered would be absorbed into that of the conquerors; so that the language, in course of its development, would have a considerable portion of its vocabulary of Iberic or Euskarian origin. The arrival of pure Keltic tribes would give a more decidedly Keltic structure to the language, and cause a diminution of non-Aryan words and idioms.

In the modern Keltic languages there are numerous words which would seem to be non-Aryan and allied to Ugrian and Euskarian. Whether these can be satisfactorily shown to be such, or can be satisfactorily traced to an Aryan origin, is a question that is highly interesting and deserving of the consideration of the scientific world. There would appear to me to be an excess of Aryanising at present, so that I feel disposed to think that there is a tendency to make some languages more Aryan than they are, and among these the Keltic languages. The following is a list of words from non-Aryan languages having a close resemblance in form to Keltic words. It would be very gratifying to ascertain whether this resemblance is to be traced to a common origin of the words or to mere accident.

Llan, in Welsh, a yard, a church. Gaelic, *lann*, an inclosure. *Iollann*=*ith-lann*, corn yard. *Bolann*, an ox-stall, a cow-house, &c. Basque *landa*, a garden. Gaelic *ais*, a "hill." Basque *asta*, a rock. *As*, milk. Basque *esnea*. *Art*, a stone. Basque *Harri*, a rock. Gaelic *aoil*, "month." Basque *ahol*. *Aon*, good. Basque *on*. *G. Abhail*, "death." Basque *hivil Ceo*, "mist." Basque *quea*, "smoke." *Gaoi*, a "lie." Basque, *gue*. Gaelic *lar*, the ground. Basque *hurra*, the "earth." Gaelic *leanabh*, a "child." Basque, *leinu*. Gaelic *lot*, a "wound." Basque *lot*. *Orc*, an egg. Basque *arrac*. Gaelic *dona*, "bad." Basque *donge*. *Ciar*, "black." Turkish *Kara*. *Toll*, a "head." Non-Aryan languages of Central India, *talla*, *tala*, *tal*; of Southern India, *talei*, *tala*, *tale*, *tele*. Gaelic *faith*, "heat." In the eastern languages of Ahom, Khamti, and Laos, *fai* is "fire." *Lua*, *lat*, a "foot." Magyar, *lab*.

In several of the non-Aryan languages of Nepaul, foot is *la*, *losu*, *li*, *le*. From *lua*, a foot, comes *luaigh*, to "walk cloth," which was formerly done in the Highlands by pressing it with the feet. Gael, *lair*, a mare; *loth*, a filly. Magyar, *lo*, a horse. Gaelic, *greadh*, a horse; *gearran*, a work-horse; *greadhair*, a stallion. On the eastern frontier of Bengal, a horse is, in several of the non-Aryan languages, *khori*, *kuri*, *gore*, *gure*, *gori*; in some of those of Central India, *goro*, *ghoro*, *gurram*. Gaelic, *onn*, a "horse." N. E. Bengal, *on*, *onhya*. Gaelic, *ce*, night. Basque, *gau*. Finnic, *yo*. Magyar, *ej*. Turkish, *gejeh*. Gall, a rock. Central India, *kal*, *kellu*, a stone. Southern India, *kal*, *kalla*, *kallu*, *kall*. Sinhalese, *gala*. Turkic, *gnn*, *kun*, "day."

"sun." Basque, *eguna*, "day." Samojed, *chu*, "dawn." Breton, *cann*, "full moon." Scotch Gaelic, *camhanach*. Irish, *cam-haoir*, "dawn." Old Gaelic, *eig*, *esga*, *easga*, the "moon," *ece*, "clear;" "manifest." Gaelic, *luan*, a "youth;" *luan*, a "son." Bashkir Tatar, *lan*, boy, son, child. Welsh, *llanc*, a "youth," "lances," a "young woman," *llwyth*, a "tribe." Hungarian, *leany*, "girl," *leanka*, "daughter." Gaelic, *Biail*, an "axe." Welsh Bwyell. *Baltu* means an "axe" in Yenessei and Samojed. Gaelic, *tuagh*, an "axe." Yenessei, Ostiak Tuk. Gaelic, *ceal*, *ceal*, "death." Welsh, *celain*, a "dead body." Gaelic, *closach*, a "carcase." Welsh, *celain*. Ostiak, *kul*, "death." Lapp, *calme*, the "grave." Gaelic, *cel*, "mouth." Welsh, *cyl*, a "concavity." Lesghic, *kol*, a "mouth." *Moth* means the male of any creature, and is obviously related to *modh*, a man. Both words are now obsolete. *Modh*, a "man," would seem to be related to the Finnic *mies* and to *mi*, the name for "man" in Tibetan and other eastern languages. The *mii* in Osesmii, would appear to be a cognate name. From *cia*, a "man," are formed *coinne*, "woman;" *cear*, "offspring;" *corc*, "children." *Cearn*, a man, or one of the tribe, is from *cear*, "offspring." Hence come the names of the old tribes, Coriondi, Carnones, Creones, and Caerini. Connected with these words are *gasradh*, the "common people," *gast*, an "old woman." Welsh, *gwas*, a "youth." Cornish, *cosgar*, youths. Comparing these, we may infer that *cas*, in *cassii*, means "man," and that *cassii* means "men," and Tre-casses, Viducasses, Bodiocasses, Bajocasses, mean, respectively, "men of the town," "men of the wood," "dwelling-men," *i.e.*, "natives." *Bodio* and *bajo* = Irish, *beac*, "to dwell," Manks, *baghey*, "dwelling." Tre = Welsh *tre*, a town, *vidu* = Gaelic *fiodh*, "wood."

The Rev. Isaac Taylor says, in his "Etruscan Researches," that "it is almost universally the case that primitive names of tribes and nations signify simply 'the men,' 'the people,' or 'the tribe.'" He remarks, also, "that the Samojedic dialects give us the two very instructive forms, *hize* and *kasa*, which both signify 'a man.'" "We have here exhibited the transition from the Finnic to the Turkic form. The Turkic *kis*, 'man,' 'person,' which again is identical with the Basque, *gizon*, 'man,' enables us to explain the names of the Kirghiz, the Karagass, the Tscherkas (Circassians), and many other tribe names."

The Gaelic *cia*, "man," *gasradh*, people; the Welsh *gwas*, a youth, and the ancient Gaulish and British *cas*, are obviously cognate with the Basque *gizon*, the Turkic *kis*, and the Samojedic *kasa*.

Nae is also an obsolete Gaelic word, meaning "man," from which is derived the modern Gaelic word, *neach*, a "person."

"Widely spread throughout the Ugric area, we find a word which takes the forms *sena*, *kena*, *ena*, or *aina*. This word denotes a 'man' or 'person'—*homo*.

"In the Aino language, *ainu* means a 'man.' In Tscheremis, *en* means 'people,' 'nation.' In Mandschu, *enen* means 'posterity.' In Finn, a man is *innimene*, and in Samoied it is *en-nische*." Taylor's "Etruscan Researches."

From *nae*, "man," are derived the following Gaelic words:—*naing*, "mother," now obsolete; *naoidheain*, a babe or infant; *niadh*, a champion, nuaill, noble, literally manly. *Nae* is found in the two tribal names, Namnetes and Nitiobriges, which respectively signify "sacred men" and "men of the land." *Nam* = *naomh*, sacred or holy. *Brig* = Irish brig, land. *Dae* is another obsolete name for "man," occurring in Robogdii, the name of the ancient inhabitants of the north of Antrim, in Ireland. It means "the men that inhabit the promontory." *Ro* = *rudha*, a "promontory," or long, narrow portion of land; *bog* = *beac*, to inhabit, and *di* = *dde*, "man." The words *ludn*, a "son;" *leanabh*, a "child;" *luan*, a "youth;" *laoch*, a "youth;" *lachd*, a "family;" the Welsh words, *llanc*, a "lad;" *llances*, a "young woman;" *llwyth*, a "tribe;" would seem to point to an obsolete or lost word, meaning "man" in Gaelic and Welsh, cognate with the Lesghic *les* and Samoiedic *lize*, each of which signifies "man."

According to Mr. Taylor, "The names of the Lycians, the Ligures, the Leleges, and a host of Turanian nations, are, in all probability, derived from this root." From a kindred root, it would seem to me are derived Lugi, the name of an ancient tribe in the north of Scotland, and Luceni, the name of another ancient tribe in the south of Ireland; also Lloegr, the Welsh name for England. Mr. Taylor says that "the name of the Mardi, one of the Median tribes, contains the characteristic Finn gloss *mart* or *murt*, 'men,' which occurs in the names of a very large number of Finnic tribes, such as the Mord-win and the Komimurt." From these facts, it would appear that "Mertae," the name of an ancient tribe in the north of Scotland, bordering on the Lugi, is of Finnic origin.

A non-Aryan root, *ar*, meaning water, seems to be preserved in the obsolete Gaelic words, *air-dhi*, a "wave;" *airear*, a "bay," or "harbour;" *arthrac*, a "ship;" and *artraighim*, "to sail." This root is to be found in a great many river names. Irish history informs us that Islay was anciently in possession of the *Firbolg*, a people identified by Mr. Skene, in his first volume of "Celtic Scotland," with the Damnonii of Scotland and England, and with the Silures, a supposed Iberic race. A place through which a streamlet flows in the west of this island is called *Ant-*

Aoradh, and a hill next the stream is called *Cnoc an-Aoraidh*, hill of the *aoradh* or "water." In the north of the island is another stream named *Abhainn Araig*. The last part *aig*, here, is a corruption of the Norse *vic*, a "creek." The Norwegians added *vic* to *abhainn ar*, to designate the creek at the mouth of the stream, and *abhainn*, a "river," was no doubt added to *ar* by a people to whose language the latter was a foreign word, in the same manner as the Gaelic people of the same island added their own name, *abhainn*, to *Laxa*, the Scandinavian name of another stream in the same island, and made it *Abhainn Laghsa*. To the root *ar* are to be traced numerous river names in the British Isles and on the continent, *e.g.* the Ayr, in Cardigan and Ayrshire; the Arre, in Cornwall; the Aire and the Are, in Yorkshire; the Arro, in Herefordshire and Warwickshire; Aru, the name of two rivers in Spain; and the Aray, in Argyllshire. *Er* and *ir* are names for "water," in some of the non-Aryan languages of Central India; *ár* and *áru* are names for "river," in others; and *éru*, in Teluga, in Southern India; while *ur* is "water," in Basque. *Câróg* is an old Welsh name for a brook. *Gar* is the name of a rivulet falling into the Spey. The Garry is a river of Perthshire; and the Garnoch is a river of Ayrshire; and there are two rivers called Carron, in Scotland. In some of the non-Aryan languages of Central India, *garra* and *khar* are names for "river." *Rath* is an obsolete name for village. Numerous places both in Ireland and Scotland are called *rath*, to which some other word is usually added. Some of the oldest and rudest fortifications go by this name. The name seems to be allied to the Basque *erri*, *iri*, *uri*, a village or town. *Ur*, *uru*, *úru*, are names for village in several of the non-Aryan languages of Central and Southern India. It may be objected to the words of which I have given a list here, that they are perhaps too like each other to justify us in inferring that they are of kindred origin; but it would seem that when the words of one language are absorbed by another, that they become somewhat petrified, and do not change at the same rate as those that naturally belong to the language do. Gaelic names, which have for centuries been introduced into English, have changed but little, while in the language to which they originally belong, the change has been very great. Angus keeps very close to the old Oengus, while the modern Gaelic form of the same name, *aonghas*, has entirely lost the *g* in pronunciation. The old Gaelic of Malcolm, *Maol-colum*, has entirely lost the first part, changed the vowel of the second part, and is now *Calum*. MacDougall, *Mac Dhugail*, has lost the sound of the *g* in Gaelic. Murdoch, *Muireadach*, has lost the *d* and become *Muireach*. Patrick, *Padruig*, has lost the *d*, which was originally *t*, and become *Paruig*. Words bor-

rowed by Keltic from the languages of the pre-Aryan inhabitants of the British Isles may, I should think, have retained their old forms with but slight alteration, and so bear a greater resemblance to cognate words in the languages of tribes descended from peoples of kindred origin with the pre-Aryan inhabitants of Britain.

The Gaelic language at present fringes the west of the British Isles, from the north of Sutherland, in Scotland, to the south of Kerry, in Ireland. From the north to the south the dialectical differences are considerable, but the variation is insensibly gradual, and South Kintyre is nearer in language to Antrim than to Skye. Kerry men and Sutherland men would at first meeting find it difficult to understand one another, but a fortnight or so of intercourse would, I should think, enable the men of the south to converse freely with those of the north. The digraph *ao* has a peculiar sound in the Scottish Highlands. It is nearly the same sound as that of *y* in numerous Welsh words, such as the article *y*, *yr*. It bears some resemblance to the sound of *e* in the English word *herd*, and to that of *u* in *churl*. In South Kintyre, *ao* = *ai* in *pain*, and it has the same sound in Munster. In other parts of Ireland it sounds like *ee* in *feel*. As compared with old Irish, the pronunciation of numerous modern Irish words deviates more from the mother tongue than that of the Scotch Gaelic does. The *adh* in such words as *deanadh*, "doing;" *milleadh*, "spoiling;" *tilleadh*, "returning," &c., are in modern Irish = *oo*; but in Scotch Gaelic *dh* retains its peculiar sound, which is = *gh*, a sound like that of *g* in German words ending in *berg*. In some parts of the Highlands this *adh* = *av*, and in others it is the same as the Irish. Such verbal nouns as *beannughadh*, "blessing;" *suidhiughadh*, "placing;" *gearughadh*, "sharpening," are pronounced in two syllables, and the two last syllables in all of them are = *oo*. In Scotch Gaelic the corresponding words are *beannachadh*, *suidheachadh*, *geurachadh*, which are pronounced in three syllables, as old Irish was, *ch* being = German *ch*, and *dh*, as already stated, = German *g* in *berg*. Old Irish converted *ch* into *g* in such verbs as *intonnaigim*, "inundate;" *cumactaigim*, "to be able;" *dephthigim*, "to disagree," as appears from the adjectives from which these verbs are formed; *tonnach*, "abounding in waves;" *cumachtach*, "powerful;" *debhthach*, "disagreeing." The *ch*, which old Irish converts into *g*, and modern Irish into *gh*, is retained intact in Scotch Gaelic. This fact leads us to infer that old Irish is not directly the mother tongue of modern Scotch Gaelic, but a sister dialect of its mother tongue. Zeuss speaks of there being four roots of the substantive verb in Irish, one of which is *fil* for the present tense. From this root *fil* comes the modern Irish form *bhfuilim*,

"am I." The Scotch Gaelic form, *am bheil mi*, "am I," is evidently not derived from the old Irish *fil*, as the north Highland form is *am beil mi*, "am I." *Beil* is surely derived from *bi*, "be," and would seem to be even an older form than the old Irish *fil*.

The negative *cha*, "not," in Scotch Gaelic and in Manks, takes the place of the Irish *ni*, "not," in negative propositions. *Nach*, a negative interrogative particle, found in modern and ancient Irish, as well as in Scotch Gaelic, is compounded of the interrogative particle *an* and the negative *cha*, "not." As *cha* is not found in ancient Irish, and the compound interrogative negative particle *nach* is, it is clear that Scotch Gaelic and Manks retain a word which became obsolete in ancient Irish.

Adjectives and substantives, with respect to case endings, are inflected both in modern Scotch and Irish Gaelic, much alike; the dative plural in *ibh* and *aibh*, however, has mostly disappeared in spoken Scotch Gaelic. The nominative plural of all the substantives in Scotch Gaelic, except that of those that form the plural by changing the radical vowel, ends in *n*. This is a form of the plural rather rare in Irish Gaelic, but frequent in Welsh. The synthetic present tense of the indicative has entirely disappeared in Scotch Gaelic, and its place is supplied by the analytic, which is formed by the substantive verb and a verbal noun. This may be accounted for by the future having lost its characteristic consonant, *f*, which rendered it hardly distinguishable from the synthetic present. The sound of the future *f* is now lost in Irish pronunciation. The tenses of the imperative and conditional only are inflected for number and person. The imperative mood in Scotch Gaelic is complete in all the persons singular and plural. The Irish wants the first person singular of this mood. The first persons singular and plural of the Scotch Gaelic imperative are identical in form with the first persons singular and plural of the Irish present indicative. The Scotch Gaelic has no consuetudinal tense. Its conditional mood differs a little from the Irish, and is less inflected. Neither of the languages has an infinitive or present participle; the place of both these is supplied by prefixing prepositions to the verbal nouns, e.g., *Deanadh*, "doing," *Tha e a'deanadh*, "he is at doing," *do dheanadh*, "to doing." The sound of English *w* is not found in Scotch Gaelic, but is found in Irish, *mh* and *bh* having that sound in this language before *a*, *o*, and *u*. In Scotch Gaelic the sound of these digraphs is nearly that of English *v* in all cases.

The Gaelic language wants a verb corresponding to the English "to have," and possession is expressed by the substantive verb and the particle *aig*, "at;" e.g., *Tha tigh agam*, "I have a house;"

literally, a house is at me. *Tha uirgiod aige*, he has money; literally, money is at him. There are some phrases that are peculiar, such as *Tha e' na shlaiente*, he is in health, literally, he is in his health: *Thae'na thuathanach*, he is a farmer; literally, he is in his farmer. There is but one inflection for the comparison of adjectives, which serves both for comparative and superlative, e.g., *Tha e nios cruaidhe*, it is harder; literally, he is in that is harder: *Au rud a's cruaidhe*, the hardest thing; literally, the thing that is hardest; *Tha Iain nios laidire na Teumas*, John is stronger than James; literally, John is in his is stronger or James.

That change of initial consonants called by Irish grammarians eclipsis, by which the surd consonants are converted into the corresponding sonants, b into m, and d and g into n, is not to be found in Scotch Gaelic. It is peculiar to middle and modern Irish, and is not found in the old language. A similar initial mutation is to be found in middle and modern Welsh. It is very remarkable that although cultivated Irish was chiefly, in the middle ages, the written language of the Highlands, and that the Highland bards studied the principles of their art in the Irish bardic schools, yet this northern Keltic speech resisted all the influences that tended to produce this peculiar mutation of initial consonants.

There are good grounds for believing that the Caledonii of Tacitus are not entirely identical with those of subsequent classical writers. Those large-bodied, ruddy-haired men cannot certainly be considered as the ancestors of the black-haired, brown-skinned, dark-eyed little people that now abound in so many districts of the Highlands, and who so much resemble the people of South Wales, the south-west of England, and the west and south-west of Ireland. This dark people are evidently descendants of races that preceded the tall yellow-haired Kelts. There is no reason to think that the Caledonians of Tacitus either smeared their skin with woad as the Britons of Julius Cæsar did, or punctured it with the figures of various animals, as was done by the Picts mentioned by classical writers who wrote long after the age of Tacitus. Tacitus was not likely to pass over such a strange custom in silence, or several other customs peculiar to the Picts, such as community of wives. The Caledonii of Tacitus were armed like the ancient Kelts, with small shields and large cutting swords, blunt at the point and not fit for stabbing. The dagger, which was as indispensable to the Highlanders of the middle ages as the broadsword, was wanting. In this respect they differed from the contemporary Germans, who were armed with the framea, a small pointed sword, and from the Caledones and Picts of writers subsequent to Tacitus, part of

whose arms were a dagger and a short spear. The Caledonii of Tacitus would appear to have brought their whole force forward to fight the Romans under Mons Grampius. There, after having fought bravely, they were completely overthrown and ruined. They were evidently the dominant tribe of North Britain, and after this defeat it would seem the subject-painted people regained their independence, and amalgamated on equal terms with their former masters.

In their mode of warfare both Picts and Silures resembled the Iberians. They did not engage the Romans with all their force at once, but encountered them in guerilla warfare. According to Polybius the Spaniards were armed with swords made for cutting and thrusting; and from Roman writers we learn that the Picts were armed with daggers and short spears. Strabo informs us that the Romans found it more difficult to conquer the Iberians than the Gauls, owing to their different modes of warfare. One battle broke down the Caledonians of Tacitus, while the Silures withstood the Roman arms for nine years. The Silures were a dark race, like the Iberians; the Caledonians resembled the ancient Gauls and Germans. In Ptolemy's time the name of Caledonii was confined to a tribe whose territory extended from the Beaully firth to Loch Long. This tribe bordered on tribes inhabiting that part of Scotland now called the West Highlands, and were obviously called Caledonii more especially to distinguish them from the tribes west of them, the Cruithnigh, Picts, or painted men, who were a commixture of several races, pre-Keltic and Keltic, and who latterly conquered their conquerors, with whose blood theirs was now commingled.

The following is Mr. Skene's summary of Tacitus' account of the Caledonians:—

"He observes one of the peculiar customs of the Britons among the Caledonians—the fighting in chariots, which was now apparently confined to the ruder tribes of the north; but it is remarkable that he alludes neither to the practice of their staining their bodies with woad, nor to the supposed community of women among them. He shows that, in the wedge-like shape attributed to Britain by previous writers, Caledonia was excluded as still unknown to them. In the language put by the historian into the mouth of the Caledonian leader, Calgacus, he implies in the strongest manner that the tribes embraced in the designation he usually gives them of inhabitants of Caledonia, were the most northerly of the British nations; that no other people dwelt beyond them; that they had neither cultivated lands, mines, nor harbours; and that he knew of no state of society among them resembling the promiscuous intercourse of women, as he mentions their children and kinsfolk, their wives and sisters, in lan-

guage only consistent with the domestic relation in greater purity."

Here we have a pure Aryan people described, free from all the non-Aryan customs peculiar to the Picts. The hand-fasting of the Highlands, that loose kind of marriage, which James the Sixth found so difficult to eradicate, would seem to owe its origin to the community of wives that prevailed among the Picts. The Picts would seem to have been originally the brachycephalous people whose remains are found in the round barrows, and who were driven westward by pure Kelts in Scotland into the mountainous regions of the Western Highlands, the marshy plains bordering on the Forth and into Galloway, in Ireland, into Connaught, West Munster, and Ulster. Exogamous marriages converted them into a mixed Keltic people, or, if originally a mixed Keltic people, into a people more Keltic than they had previously been. They are always mentioned in old Irish writings as Cruithnigh, or painted men, who excelled in magic, poetry, and arts, and are distinguished from the *Gaedheals* or Scots, and the Firbolg. In old Welsh writings the Picts of Scotland are called Gwyddil Ffichti, a name which implies that the Picts were a commixture of Gaels and another race; that, in fact, even after the battle of Mons Grampius two peoples were united originally different from one another, the one of which were the Caledonii and the other the Picts. The name Caledonii is cognate with Celtæ and Gaedil. The primary part of the name Celtæ is *Cel* = *Gal*, as in Galatæ and Galli, and *Cal*, as in Caledonii. *Gal* in Irish means kindred; *gaol* means the same; and *Brathair gaol* signifies one of the same tribe; literally brother of kindred. *Gaedal* is formed by metathesis from Gaelad or *Gael dâe*, a kindred man; similarly Caledonii is resolved into *Cal* or *gal*, kindred, and donii = *dóine*, old Irish plural of *duine*, a man. Caledonii, then, is equivalent to *Gaidheal*, the name by which a Scottish Highlander of the present day calls himself, the modern Irish form of which is *Gaoidheal*, the name by which an Irishman calls himself in his native language. Had all the Picts whose name was changed into Scots in the twelfth century, been Cruithnigh, it is not likely that all the people of the Scottish Highlands, in fact all the Gaelic speaking people of Scotland, who in the tenth century extended to the German Ocean, would have adopted a name peculiar to an Irish people who settled in Argyllshire, and were comparatively small in numbers. The name of Gael was not, therefore, introduced by the Dabriadic Scots, but was the name of the descendants of the pure Caledonii in the north-east of Scotland before their kinsmen, the Scots of the west, had acquired ascendancy over the Picts. The name Calgacus is purely Gadhelic, and is de-

rived from *calg*, an old Irish name for sword. *Calgacus*, therefore, means swordsman or warrior, and is the same name as the old Irish name *Colgach*. *Vacomagi* means "sons or men of the plains." It is formed from *Vaco* = Gaelic *faiche*, a "plain," and *mag* = *mac*, "son." *Horestii* denotes the "men of the east," and is derived from *Hor* = Gaelic *oir* or *h-oir*, "the east."

The Caledonii of Tacitus would seem to have been a more recent body of Keltic immigrants than the southern Britons, and to have come across the German Ocean; probably from the Cimbric Chersonese or modern Jutland into the north-east of Scotland. The colonisation of Britain by Kelts was in all likelihood progressive, as was the case with the Angles and Saxons and lasted for some centuries. The pre-Aryan population was driven westward, as happened at a subsequent period to the Britons, and the pre-Aryan languages were supplanted by the Keltic as the British was by the Anglo-Saxon.

Throughout the Scottish Highlands the ethnologist observes that a large portion of the population is dark-skinned, dark-haired, and grey-eyed, dark-eyed, and small in stature. In these respects the Highland people bear a strong resemblance to the Welsh, the south-western English, the western and south-western Irish. The dark population does not seem, by any means, to be homogeneous, but would appear to be a commixture of several races. A dolichocephalous skull is the more frequent among them, although round heads are not rare. One type is to be observed with straight profile and rather flat forehead, somewhat like the Basque; a prognathous type, with prominent eyebrows and receding chin, is frequent. These types are occasionally found with flaxen, red, and yellow hair. A type is to be met with long head, long oval face, eyes various, and complexion varying from fair to dark. Person rather slender; often tall. This type I would call characteristically Keltic. Children are to be seen with flaxen hair and dark eye lashes. The hair of these children as they grow up darkens and becomes dark brown, and sometimes even black. These various types are found in the same family, derived from father and mother without producing intermediate ones. Members of the same family are also found alternately flaxen-haired and black-haired, flaxen-haired and red-haired, black-haired and yellow-haired. I have found bright red hair and light red hair alternate in the same family. One brother had a long head, a long face, brown complexion and bright red hair, the other a round head, round face, light red hair, and a florid complexion. I have frequently found the occipital protubérance large in the heads of men of the Scandinavian type that I examined. I found this also to be the case in the head of a fair Icelfander; the only Icelfander whose head

I examined. I have found in many fair Highlanders the portion of the backhead joining the neck broad and flat, and, in long-headed dark Highlanders, that part flat, and the part immediately above it remarkably prominent.

Bright red or bright yellow hair is not frequent in the Hebrides. Light red and light yellow hair abound, passing through several shades of yellowish and reddish-brown into reddish and yellowish dark-brown. In Islay the complexion varies from sallow to fair. The most frequent colour of hair is reddish-brown; the most frequent colour of the eyes is grey and bluish-grey. In the south-west of Islay fair and sandy hair, accompanied by a fair complexion, prevails. In Colonsay fair and sandy hair is frequent, and the complexion is usually fair. In Jura lithe men with dark hair, dark eyes, dark complexions, and oval faces strongly attract the attention of the ethnological observer. In Barra the people have usually dark and brown complexions, and the colour of the hair is reddish-brown, dark reddish-brown, and black. Very fair persons, however, are to be seen. In the little island of Minglay, two types struck my attention when I visited it sixteen years ago. The one had fair hair and a very clear skin, square face and head, and a full round chest. The other was lithe in form, with dark complexion, long oval face, long arched eyebrows, long high head, and light grey eyes. I met with this type occasionally throughout the whole of the long island, and everywhere in those parts of the Highlands which I have visited. In South Uist and Benbecula dark hair, dark and grey eyes, and dark complexions predominate. In the west of Sky, about Dunvegan, the people are fair haired and clear skinned, and evidently belong chiefly to the Scandinavian race. In Stornoway the frequency of tall and fair persons strongly attracted my attention, and I was astonished at the number of tall and fair natives of Harris that I met at various places.

It is evident that the racial characteristics of the people of the West Highlands, especially of the Western Isles and of the coast line, have been materially altered by the Norwegian occupation which commenced in the eighth century and ended in the thirteenth after the battle of Largs. I have looked at Danish, Swedish, and Norwegian sailors in the island of Islay side by side with Highlanders, and was surprised at the close resemblance that the former bore to the fair portion of the latter. I have been equally surprised at the close resemblance that a French crew bore to dark Highlanders seen along with them.

Local names of Norse origin are to be found in all the isles and all along the coast line. In Islay names of Norse origin

constitute one half of the names of places, and in Lewis probably a great deal more than one-half. Some personal names are of Norse origin, which are at present frequent in the Highlands, such as Torquil, Tormod = Thormund, Anglicised Norman. Somhairle = Somerled, Anglicised Samuel, and Raonailt = Raginilda, Anglicised Rachel. Careful research, I have no doubt, would find numerous words of Norse origin in Irish, Scotch, Gaelic, and Manks. The Norse word for "neighbour" has supplanted the Gaelic name, *coimhearsnach* in North Highland, Gaelic, and in Manks. In the former it has taken the form *nàbuidh*, and in the latter naboo. Danish, nabo.

Fir Gailliain or *Gailiun*, one of the names of the Fir bolg, brings us back to the stone period. *Gaillian* means a "dart," but literally, a "stone dart," and is derived from *gath*, a "spear," "dart," or "arrow," and *lith*, a "stone." Old Gaelic traditions frequently mention a weapon named *gath builg*, "bag dart." A variant of the story of Conlach and Cuchullin relate that these two, father and son, fought one another with this weapon, which was thrown from the hand. The Fir bolg, or men of bags, or quivers, were evidently so called because they carried quivers, and were armed with this weapon. *Gath bolg* and *bolg-saighead* are Gaelic names for quiver. The other name *Fir Domhnon* would seem to come from *dumh*, a "mound," and those earth-works called *raths* are usually attributed to the Fir bolg. *Dam* and *dum* in *Dumnonii* and *Damnonii* are evidently forms of *dumh*, a mound, and hence *damnonii*, *dumnonii*, and *Fir Domhnon*, as names which signify mound builders.

The Scottish Highlanders of the present day are a commixture of several races, Keltic and Scandinavian, and it would seem to me that the pre-Keltic races could not have been fewer than three or four.

DISCUSSION.

In the discussion on the above paper Mr. HYDE CLARKE observed, that the zeal of the Celtic enquirers had brought to light many points of resemblance between their languages and those of other parts of the world. In the last century the Rev. Hugh Rowlands, in his *Mona Antiqua*, produced a list of 1,000 Hebrew analogues. At the British Association a paper was read on Polynesian conformities. The Rev. Professor John Campbell, now of Montreal, has illustrated these relations from Peruvian. Some of these approximations were fanciful, some casual, but others were true; because Celtic, like Sanskrit, is derived by development from the prehistoric stock. They consequently deserve more attention than they have received, because the observation of these points will enable us in time to account for many of the phenomena of the Indo-European family for instance. There can now be no reasonable

doubt that there were Sumerians in these islands, as elsewhere in Europe. As an illustration of these prehistoric peculiarities in Celtic, it is worth while putting on record the observations of Professor Campbell, the learned explorer of the genealogies and chronology of the Bible. Prof. Campbell informs me that out of 95 words in my Peruvian vocabulary ("Prehistoric Comparative Philology," p. 64) he has found well-defined Celtic equivalents for above 70. He says

"I connect the Aymara Stonehenge of Tiahuanaci with the Cymric Stonehenge of Emrys or Ambrosius. The point where Cymri and Aymara diverged north and west was Mauretania. There we find Gumeri, speakers of the Aqel Amazig, Ait Amor or Zimuhr, Pritchard's Celtic Cambrians. They became the Cimbri of Spain, and the namers of Gomera, Pliny's Ombrios, in the Canary Islands. Rivero Tschudi (chap. 2), connect the Canary Islanders and the Aymaras physically, and by their customs. Flattened crania are found among the Celts. The Canary Islanders and the Berbers (Ait Amor, &c.) are the same people. Their vocabulary is fundamentally Celtic, like that of the Aymaras. The Berbers are the Accad and Armenian Burbur. All (Aymaras included) are mountaineers. But the Berbers came from Barbaria in Ethiopia. See Pliny, Strabo, Leo Africanus and Arabian authorities on Maghrib. There we have Amharas in your Danakil region. Nearer Egypt were Sembritæ and Zeniris (Ait Zimuhr). The Amhara came from Himyarite Arabia, which is also the region of Pliny's Zamareni. All Himyarite culture and worship connects with Chaldæa. It was original in Chaldæa, not in Arabia. The Semtscriæ are the same people, but were never in Arabia. Psammetichus placed these invaders of his northern coast as a barrier against Ethiopia. Semtscriæ and Himyarites (not Sabacans, who are distinct) came perhaps through Palestine from Armenia, the Burbur region, which Mr. Boscawen (Trans. Soc. Bib. Archæol., vol. iv, p. 293) connects with Gimirrai or Cimmerii. There is Pliny's Zimara. These, again, are the Zimri of the inscriptions, whose home was among the mountains of south-western Media. To this point they came from southern Assyria, about Hamra and the Hamran Hills. They were then known as the Khamri and Khamarani. Their original home was either in the Hymer district about Babylon, or at Gomoreck, further south. Hammurali was their great ancestor, and he is the Zimran of my second paper on the Celts. There, also, we find the first Burbur race. Stonehenges in Arabia, Media, &c., connect the people archæologically. In Accad, Danakil, and Aymara you have connected them philologically. Add my Celtic connection, which I think the underlined words will at least bear out. Try Berber. I have no

vocabulary, but here are a few words:—Tahuyat = covering, Welsh töad; Amen, water, Erse amhan, river; Athraar, Iddra, mountain, Gaelic torr; Ahoren barley, Gaelic corna; Ana, sheep, Celtic uan, oen, wyn, lamb; Bukul, earthen pot, Erse bachla, a cup; Akfic, head, Erse cab, Welsh copa; Tigameen, houses, Gaelic tighéan; Tigarér, a place of justice, and Tigotan, heavens, are compounded of the same word. Had I a good vocabulary I do not doubt that the Berber would come very close to the Aymara. The Cymri were, I think, older than the Celts proper, at least as British colonists. Some of the words in your vocabulary that do not coincide with the Celtic do with the Latin (kkollo, collis), perhaps through Umbrian, which is Celtic, and with the Germanic (kkollo, kügel; lappi, lamb; socco, A. S. suacga). The Cymri were the African branch of the Zimri, the Cimbrî the European. Semitic roots appear, ucuichua cuspi, flies is the Semitic Zebub: Aymara lupi, sun is Semitic lahab. Himyaritic gives these and Amharic stages."

Comparative Vocabulary: Peruvian and Celtic.

			PERUVIAN.	ERSE.	GAELIC.	WELSH.
Man	..	A.	<i>Kkari</i>	<i>cearn</i>	—	gur.
"	..	Q.	<i>runa</i>	<i>reim</i>	—	—
"	..	A.	<i>chacha</i>	—	—	—
"	..	Q.	<i>cozra</i>	<i>cia</i>	—	—
Woman	..	Q.	<i>rakka</i>	<i>reac</i>	gruagach	gwraig
"	..	A.	<i>marmi muirean, muirui</i>	—	—	merch
Head	..	A.	<i>ppekei</i>	<i>feighe</i> (top)	beis (beak)	pig
Hair	..	A.	<i>suncca</i>	<i>gimmach</i>	—	sioch
"	..	Q.	<i>socca</i>	<i>sunadh</i>	—	—
Face	..	A.	<i>akann cionnacha, caini</i>	—	gunis	—
Eye	..	A.	<i>naira</i>	<i>amharo</i>	—	—
Ear	..	A.	<i>hinchu</i>	<i>ogh</i>	—	—
Mouth	..	A.	<i>*llaka</i>	<i>billeog</i>	<i>duilleog</i>	—
"	..	Q.	<i>simi</i>	<i>scamh</i>	—	safu
Tooth	..	A.	<i>kehaka</i>	<i>feacc</i>	—	—
Heart	..	A.	<i>chwimo</i>	<i>caemh</i> (love)	—	—
Hand	..	A.	<i>tachlli</i>	<i>glac</i>	—	llaw, deanlaw
				tuthal (left hand)	toisgeal	(right hand)
Foot	..	A.	<i>kayu</i>	<i>cas, cos</i>	<i>cas, cos.</i>	—
"	..	Q.	<i>chaqui</i>	—	—	—
Horn	..	A. and Q.	<i>huakra</i>	<i>croc</i>	<i>croc</i>	—
Skin	..	Q.	<i>ccara</i>	<i>guar, guairche</i>	<i>croicionu</i>	—
"	..	A.	<i>lepitchi</i>	<i>leabthach</i> (bedding! of skins)	—	—
Sun	..	A. and Q.	<i>inti</i>	<i>ion, ong</i>	—	—
Moon	..	Q.	<i>quilla</i>	<i>gealach</i>	<i>gealach</i>	—
"	..	A.	<i>paksi</i>	<i>esc, eag, easga</i>	—	—
Star	..	A.	<i>sillo</i>	<i>silsighim</i> (shine)	—	ser
Day	..	A.	<i>uru</i>	<i>ur</i> (sun)	—	—
Fire	..	A. and Q.	<i>nina</i>	<i>an, ain, ong</i>	<i>teine</i>	tan
Water	..	A. and Q.	<i>yaku</i>	<i>oiche</i>	<i>uioge</i>	gwy
"	..	Q.	<i>unu</i>	<i>ean, an</i>	—	—
River	..	A.	<i>hahuri</i>	<i>suir</i>	—	—

		PERUVIAN.	IRISH.	GAELIC.	WELSH.
Stone	.. A. and Q.	kat	dach, dooh	dach, doch	—
Tree	.. A.	khoka	geag (branch)	—	—
"	.. A.	quenna	gnia	—	—
Leaf	.. A.	*lakka	lag, lagau	(cavity)	—
House	.. A.	uta, ata	ait, aitas, aithe,	tigh	ty
"	.. A. and Q.	pimcu	bocan, hmait	—	—
Sheep	.. A.	ccaura	caera	caora	—
"	.. A.	una	uan	uan	ocu, wyn
Goat	.. A.	paca	poc, boc	—	—
Dog	.. A.	anakara	cu-cunaich (spaniel)	—	—
"	.. Q.	calatu	callae	—	gelgi
Snake	.. A.	katari	nathair	nathair	neidr
Fish	.. A.	kanu	cigne, cagna	—	—
Good	.. A.	asque	seag (beauty)	—	—
Bitter	.. A.	haru	garu	geur	chwneur
Black	.. A.	chamaka	ceomhar (dark)	—	—
Red	.. A. and Q.	pako	baec	—	—
Give	.. A. and Q.	chu, ku	ascodh (gift)	—	—
Run	.. Q.	huayra	—	—	gyru
Flow	.. Q.	puri	—	—	fridio
Go	.. A. and Q.	humi	cime	imich	—
Speak	.. A.	aruai	—	aithris	areithio
"	.. Q.	rims	reim (call)	reicim (tell)	—
Eat	.. A.	mancana	man	manchainne	—
Die	.. A.	amaya	samh	meath	gmado, masu
Cut	.. A.	cuta	gutach	sgath sgad	cwytan
Cry	.. Q.	hnaca	cigim	—	—
Place	.. Q.	chura	cuirim, creas	—	—
Rise	.. Q.	hatar	—	—	dwyre, dyddwyre
Raise	.. Q.	hucaro	corra-ghim	—	—
An	.. A.	naka	cia (each)	—	—
"	.. Q.	kuna			
No	.. A.	kani	cha'n	cha'n	—
Negative	.. A.	na	me	mi	me
Thou	.. A.	ta	tu	thu	di
He	.. A.	hupa	—	—	efe
"	.. A.	ni	neach	—	—
Plural	.. A.	kana	gon	—	gwahanu
Nose	.. Q.	cenca, cinga	cuinean (nortail)	cuinean	—
Mise	.. Q.	pocoy	abuigh	abuich	—
	.. Q.	hnayllaca	—	—	sylich
	.. Q.	missac	meacan	meas	—
	.. Q.	lluchos	—	laogh (calf)	—
	.. Q.	carachupas	—	currag	—
	.. Q.	atoc	—	—	gwyddgi
	.. Q.	cuy	coisein	—	—
	.. Q.	cullu	coill	coille	—
	.. Q.	para	—	fras	—
	.. Q.	anta	unga	—	—
	.. Q.	komer	—	corm	—
Fat	.. Q.	raccu	rogmhar	—	—

The meeting then separated.

* Leaf = tongue, H.C.

MARCH 27TH, 1877.

Col. A. LANE FOX, F.R.S., *Vice-President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following new member was announced: Capt. W. SAMUELLS, Bengal Staff Corps.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the INSTITUTION.—59th Annual Report of the Royal Institution of Cornwall, 1877.

From the AUTHOR.—On the Peopling of America. By A. R. Grote, A.M.

From HYDE CLARKE, Esq.—The Eastern Origin of the Celts. By John Campbell, M.A.

From the SOCIETY.—Transactions of the Asiatic Society of Japan. Vol. IV.

From the SOCIETY.—Bulletin of the Buffalo Society of Natural Science. Vol. III. No. 4.

From the ACADEMY.—Atti della R. Accademia dei Lincei. Vol. I. No. 3, 1877.

From the AUTHOR.—Select Plants for Industrial Culture or Naturalisation in Victoria, 1876. By Baron Fred. Von Müller.

From the SOCIETY.—Bulletin de la Société Imperiale de Naturalistes de Moscow. No. 3, 1876.

From the EDITOR.—Archiv für Anthropologie. Neunter Band, Viertes Vierteljahrshaft, 1877.

From the EDITOR.—Revue Scientifique. Nos. 38 and 39, 1877.

From the AUTHOR.—L'età della pietra nelle province Napoletane; Scoperte pre-istoriche nella Basilicata e nella Capitanata; Ulteriori Scoperte relative all' età pietra nelle provincie napoletane; Nuove scoperte pre-istoriche nelle provincie napolitane. By Prof. G. Nicolucci.

From the AUTHOR.—Etudes Paleoe ethnologiques dans la Bassin du Rhone. By Ernest Chantre, Hon. M.A.I.

It was announced that the Council had voted special thanks on behalf of the Institute to M. Chantre, for his present "Age de Bronze."

The following papers were read by the Directors:—

On a "KITCHEN MIDDEN" AT VENTNOR. By Mr. Hodder M. Westropp.

IN excavating for the foundation of a house at Gils Cliff, near Ventnor, a kitchen midden was lately discovered. In it were found several fragments of pottery, bones, and shells. A fine example of a stone-hammer, or more probably a corn crusher, was also found. It is 8 inches long, with a circular indentation in the centre. In shape it exactly resembles those found in Scandinavia and in Yorkshire, and as figured in Wilson's "Stone Age," and in Evans' "Ancient Stone Implements." Higher up the cliff, the remains of a fireplace and a kitchen midden occur. Among the remains of the fireplace were found a large quantity of charcoal, and some large stones exhibiting deep traces of the action of fire, together with a number of small round pebbles. In close proximity to this fireplace was the kitchen midden, or refuse heap, where were found numbers of limpet shells, oyster shells, cockles, &c., thickly massed together; and in conjunction with these were several bones of the ox, sheep, pig, &c. Intermingled in this heap were fragments of pottery of Roman and Romano-British manufacture. Two rubbing stones also turned up. Several nodules of iron pyrites were also met with, evidently used, as Mr. Evans has suggested, for striking fire. The most remarkable find in this kitchen midden was a small cinerary urn, five inches in width, nearly perfect. It is of an unusual shape, and presents a peculiar and very rare style of ornamentation, consisting of a band of coralline seaweed round it. A fragment of another urn was also found presenting the same ornamentation. Another kitchen midden was discovered some years ago, on making the new entrance to Steephill Castle. It consisted of heaps of limpet shells, intermingled with fragments of rude pottery, and the bones and horns of the ox. It is, doubtless, of a very early period, and of a very rude and primitive age, as the pottery found in it is very rude and coarse, the ornamentation being done by laying a string on the wet clay. From the marked difference of the pottery found in the kitchen middens near Ventnor, they evidently belong to different periods, separated by a wide interval of time. The pottery found in Gil's Cliff must be of a later date, as it is of a very fine clay, and of a black colour, while the ornamentation is very elaborate, and carefully traced in diagonals with a stick on the wet clay. Evidence of a Roman period appears in the kitchen middens in Gil's Cliff, as Samian ware, and pottery of a very fine clay and of a dark red colour are found in them. The rude fragments of

pottery near Steephill Castle evidently belong to the stone age, while those on Gil's Cliff appear to be of the bronze age. Traces of several other kitchen middens occur near Ventnor. In digging for graves in the churchyard of the old church at Bonchurch, heaps of periwinkles and limpet shells are turned up, evidently the remains of kitchen middens; the tusk of a wild boar was also found there. Another was observed near the Ventnor railway station. Intermixed with oyster shells were a number of sheep's bones; a human jaw bone of large size was also found, evidently belonging to some gigantic savage of primitive times. Traces of a rude kitchen were discovered at Underwath, about a mile and a half from Ventnor. A large stone was found over a heap of charcoal and ashes. The food to be cooked was placed on the heated stone, as done by the Australians and other savages of the present day.

*On a "KITCHEN MIDDEN" FOUND in a CAVE NEAR TENBY, PEMBROKESHIRE, and EXPLORED by WILMOT POWER, M.R.C.S.E.
By EDWARD LAWS, late 35th Regt., Jan., 1876.*

THERE is in the limestone rock, about two miles inland from Tenby, a well-known bone cave called Hoyle's mouth, christened, I fancy, after a Flemish family, for though the name has disappeared in South Pembrokeshire, I am informed it still exists in Cumberland, the site of the first colony from Flanders which was removed to West Wales in the 12th century by Henry First. Many scientific (and unfortunately, also, unscientific) folks have dug in this cavern. Among the former, Mr. Smith, rector of Gurfreston, has been the most successful.

He has found *hyæna crocuta*, *ursus spelæus*, *rhinoceros tichorinus*, *cervus terandus*, *cervus elephas*, *equus spelæus*. Human bones, the remains of domestic animals, chips of flint, and a remarkable hornstone, copper coins of George Third, and an old pen-knife.

What renders this medley the more confusing is that the objects were mingled together, and not distributed in layers as in the more fortunate caves. However, although the upper strata has been ransacked, there are, no doubt, treasures still to be found in the virgin breccia of some of the inner chambers.

I dug for several days in this cave, and objects turned up, but they were evidently the overlooked leavings of others, and, having been displaced, appeared to me to be worthless.

So I determined to try another cave nearer to Tenby, and known as the "Little Hoyle," or "Longbury Bank." At first

sight the latter name is suggestive of burial, but we must remember that this appellation, not being Keltic, must have been given subsequently to the year 1100. For, so far as I can find, *no* Welsh traditions are embodied in the English nomenclature of South Pembrokeshire, and when we find that "bury" is used in this county to signify a fox-earth as well as a rabbit-hole, I think the fact that Long bury is a celebrated breeding-place for these animals, and that there are entrances to the earths on both sides of the rock which appear to communicate, will account for the derivation of the name. This I am the more anxious to trace, as competent persons have thought that this cave has been used for sepulchral purposes, a conclusion in which I cannot concur.

Speaking of this place in "Cave Hunting," Professor Boyd Dawkins says, "It was explored by the Rev. H. Winwood in 1866, who found in it the remains of *bos longifrons*, goat, badger, and dog, as well as oyster and large limpet and mussel-shells. Some of the bones are burned. Several human vertebræ, and a metacarpal, probable traces of an interment of unknown date, and two flint flakes of uncertain age." He adds, "It was inhabited in historic times, since it contained fine-grained pottery of the kind usually found in the ruins of Roman villas."

When Mr. Power and myself began our operations in January last, it was quite apparent what portions of the cave had been explored, and what were untampered with. For, though owing to the dryness of the place, there is no stalagmite, yet a certain amount of surface-water, filtering through the roof, runs down the walls, and has cemented the angular fragments of limestone with bones and shells into a breccia, which, when the rubble and soil were removed, stood out like shelves or brackets from the sides; in some places nearly meeting in the middle, and so rendering it impossible to work near the sides without partially destroying them.

Under these shelves of breccia, and at depths varying from two to five feet below the uppermost, we found the remains of at least six human beings, bones of oxen, goat, sheep (?), horse, dog, swine, roebuck, shells of oyster, limpet, mussel, cockle, whelk, periwinkle, two fragments of coarse pottery, a bone needle, a portion of another bone instrument, a fine hornstone scraper, formed of the same green stone, flakes of which were found in the Hoyle by Mr. Smith, a water-worn sandstone, about eight inches long, which, from its shape and the bruises on it, would seem to have been used as a hammer, several flint flakes, several water-worn sandstones, both red and grey, two ironstones, and several white water-worn quartz pebbles.

These various substances, with the exception of the scraper

and needle, were contained in two different heaps of black vegetable mould, mixed with broken shells, bones, and angular fragments of limestone.

The needle and the scraper were on the surface of the clay immediately underlying the outskirts of the larger heap, and near where Mr. Winwood had previously dug; not far from these, and also on the surface of the clay, there was a small deposit of charcoal. After removing the refuse-heap, another opening to the cave was revealed, leading into a depression, or roofless chamber.

We found, on digging in this outside pit, a sort of path, almost paved with shells, and leading up to the surface of the field; near to the top of this path there was a piece of iron slag and a considerable fragment of a Roman patera, similar, I suppose, to that found by Mr. Winwood on the surface of the breccia, but very different to those dug from the middle of the heap by us.

Now, as regards the objects accumulated in the midden.

With scarcely an exception the bones were broken, and in no instance were they in position as they would occur after burial. On at least one there are the marks of a cutting instrument (vertebra of bos), many are split, and some burnt. But *none*, so far as I could see, were marked with teeth scores.

The bones of man and beast were mixed up in a confused heap with shells, stones, black earth, and pottery in a sort of hotch-potch. The impression left on my mind is that these bones were *all broken by man for food*.

A few words as regards the remains themselves.

The ox bones have belonged to many individuals, and were, without exception, *Bos longifrons*. This is the more interesting, as the modern Pembrokeshire cattle have been pronounced by Messrs. Darwin and Rütimeyer to be one of the domestic types which are in direct descent from *Bos primigenius*. I have, in my possession, some oxen's skulls, which were dug up in the town of Tenby, together with a coin of Vespasian, these are, some of them, *Bos longifrons*, but others resemble the modern Castlemartin oxen of Pembrokeshire. The bones clearly distinguishable as goat are small.

Those which may be sheep or goat would be about the size of the modern Welsh mutton.

The dog, of which there are portions of several individuals (a perfect cranium being one of the few unbroken bones), must have been a formidable beast.

I compared the head with the skull of a very large St. Bernard, and the cave dog was the bigger of the two.

The swine, also, were very large, perhaps the ancestors of our

modern Welsh pigs, which are sometimes as big as a small donkey, with ears like a newspaper. Or, peradventure, they may have resembled the old Irish greyhound breed which had wattles under the chin.

Of the horse, there are but slight remains, and not of more than one individual; it seems to me to have been a pony of about fourteen hands.

Of the roebuck, there is but one horn.

Fox, badger, polecat, hare, rabbit, and bird bones, were, also, present on the outskirts of the heap; but these I put no trust in, thinking them to be recent.

There were a very great quantity of oyster and limpet shells, many marked with fire, but some of the former unopened.

The other shells, altogether, did not amount to a dozen specimens. The two fragments of pottery were very rough, and totally different from the Roman ware found above-ground. They seem to have been turned on a wheel, and one is marked with latitudinal lines.

The needle is a beautifully perfect implement, $3\frac{1}{2}$ inches long, with an eye, it would seem, to have been cut from the shin-bone of an ox, and nicely polished. The broken implement may, I think, have been a borer, but this is only conjectural.

The scraper is chipped out of the same green horn stone, numerous flakes of which were found in the Hoyle by Mr. Smith.

The chips are of ordinary flint.

The human remains consist of the lower jaw-bone of a person in the prime of life, the right squamosal of a skull, and an atlas.

These were taken from the outskirt of the heap, and near the spot whence I fancy Mr. Winwood dug the vertebræ in 1866.

From out of the heap itself (the skulls, generally, being low, the other bones scattered all through), were taken, the portion of a lower jaw, the wisdom-tooth not being cut. Two others in the prime of life, and two older jaws. The teeth were all worn on the outer edge, slightly in the younger, and very much in the older ones.

I also found scattered fragments of a dolicocephalic skull, which I have pieced together so as to make the cranium nearly perfect from the superciliary ridges to the occiput; there were, also, fragments of other skulls (form unknown). Two astragali, right and left (very small), first phalanx of a little finger (very small), heads of three femurs, end of right humerus and fragment of shaft of humerus, head of left ulna, and piece of left clavicle.

From comparison with recent bones, it will be seen at a glance that these remains must have belonged to a very small

people; and as both Kelt and Scandinavian were a large-boned people, the former being also brachycephalic, I would venture to suggest that in this cave we may have found the dwelling-place of an allophyllian people, perhaps members of that Iberian tribe whom the Romans found established in South Wales, and whom the Welsh called Gwyddels or wild men of the woods, and afterwards seem to have confounded with their own Gad-helic cousins.

Judging from what we find in this cave, they were unacquainted with the use of metal, but turned pottery on a wheel. They were herdsmen, having oxen, goats, sheep (?), pigs, and for the protection of themselves and their flocks they kept a large breed of dogs; and that these beasts did sharp service on occasion may be seen from the marks of a severe wound on the canine skull which I discovered.

The only hunting trophy found in this cave was a roebuck's horn; without, indeed, the horse was a beast of chase.

But in an adjoining cave were brown bear teeth and bones, with the remains of man, ox, sheep or goat, dog, swine, and a flint flake.

Our troglodytes would seem to have been longshore fishermen, and greatly to have preferred oysters and limpets to other shell-fish.

With regard to the charge of cannibalism I have brought against this people, it must be remembered that Diodorus, on hearsay evidence, declares that the Britanni of Irin were anthropophagi. History and tradition both continually associate Southern Ireland and South-West Wales.

Formerly the base of the limestone rock in which these caves are placed, must have been washed by the sea; but it has been expelled by several concurrent causes.

First and chief, the gradual uplifting of the land, which is shown by an old beach raised some dozen feet above high-water mark. A very good specimen of this old shore may be seen above Merlin's Cave, on the South Sands, Tenby. Fragments of it also exist near the limestone quarries on Giltar Head.

Secondly by drift sand which continues to accumulate to a great extent on the neighbouring burrows.

Thirdly, by alluvial deposit. Just under the Longberry Bank, there are brickworks, and the proprietor informs me that under ten feet of clay (exactly resembling that found by me in the second cave I mentioned), he comes to sea-sand and shells.

Fourthly, by man. Two embankments have been made at different times for the purpose of reclamation, and lately a railway bank has been added to the defences.

That the difference in level has been in progress during recent

years is also proved by some ruined cottages of the kind called Flemish. These are known as "Old Quay," though they are now at least two miles from the sea.

DISCUSSION.

In the discussion on the above papers, Mr. MOGGRIDGE said: Kitchen middens are still forming. One that occurs to me at this moment is within sight of Tenby, but on the eastern side of the bay at the village of Penclawd, in Gower. Its inhabitants live chiefly on the produce of the sea; and shells (especially those of the cockle) with other refuse accumulate, forming a large and growing heap.

As the caverns near Tenby and the remains found therein were spoken of in the paper, I may mention that the peninsula of Gower affords numerous caves rich in the bones of *Ursus spelæus* and others of those animals known as the "extinct." At the exploration of some of these I assisted: perhaps the most satisfactory was Bacon Hole (so called from a stalactitic mass resembling a ham), because we had here a continuous floor of stalagmite averaging 14 inches in thickness; stamping with considerable antiquity all that was found beneath it.

The following paper was then read:—

On the BRAINWEIGHTS of some CHINESE and PELEW ISLANDERS.
By Dr. CROCHLEY CLAPHAM.

IN a paper which I wrote some time ago on the Weight of the Brain in the Insane (West Riding Asylum Report, vol. iii, 1873), I showed that the mere weight of the brain in this class of patients was fully equal to, if not greater than, that obtaining amongst sane individuals of all classes outside asylum practice.

From the facts which presented themselves to my notice whilst engaged in the above researches, I was induced to adopt Wagner's conclusion that "superiority of size of brain cannot be regarded as a constant accompaniment of superiority of intellect," and I am now prepared to present some further illustrations of the truth of this conclusion.

In the paper above referred to, I showed that the weight of the encephalon in 716 cases of insanity, of all ages and both sexes, was 46·285 ounces avoirdupois; for males alone 48·149 oz., and for females alone 43·872 oz.; with a male maximum of 61 ounces and a female maximum of 56 ounces. These figures are higher than those deduced by Dr. Robert Boyd from an examination of 2,086 sane brains (Philosophical Transactions, 1860). I may state here that my tables now include 1,200 in-

sane brains, and that the previous estimate is not affected by the addition. The remaining 484 brainweights will be published at an early date.

The above figures relating to the insane have considerable significance, when taken in connection with the fact that all the cases were drawn from the pauper, and therefore presumably the least intellectual, stratum of society.

The cases I have now to advance comprise 16 Chinese, 4 Pelew Islanders, and one Bengalee constable, whose brains I weighed with much care, eliminating as far as possible all elements of fallacy, the ventricles being tapped and the brain substance allowed thoroughly to drain itself before being placed on the scales. Of the 16 Chinese 15 were victims to the fury of the great Typhoon which raged in Hong-Kong September 22-23, 1874, and the remaining one was the celebrated "Spark" pirate who was executed about the same time. Five were females and eleven males, and with the exception of one individual, they all belonged to the "Coolie" or lowest grade of Chinese society.

On account of the excitement consequent on the state of Hong-Kong after the typhoon, I was unable to get any particulars as to age, and had to judge to the best of my ability from the appearance of each individual as to his or her probable age, which must therefore be taken as only an approximation to the truth.

The following is a table of the weights (Chinese brains) :—

Case.	Probable age.	Enceph.	C. P. and M.	Case.	Probable age.	Enceph.	C. P. and M.
	Years.	oz.	oz.		Years.	oz.	oz.
1	30	49½	6½	9	55	49½	6
2	28	50	5½	10	35	51½	6½
3	45	53½	5½	11	30	46½	5½
4	40	56	6½	12	26	45½	6
5	50	49½	6	13	38	49	5½
6	40	48	5½	14	30	44	5½
7	25	46½	5½	15	70	42½	5½
8	48	54	6½	16	18	46½	5½

From the foregoing table I gather that the average weight of the encephalon in the 16 cases (men and women) was 48·890, &c., ounces ; for men alone 50·45 ounces, and for women alone 45·45 ounces, with a male maximum brain of 56 ounces, and a female maximum brain of 49 ounces.

The cerebellum, pons varolii and medulla oblongata, which are represented in the table by the letters C P and M, were weighed

together in each case and show an average, for the sixteen, of 5·796, &c., ounces ; for males alone 5·90 ounces, and for females alone 5·55 ounces.

An average taken of the ascribed ages shows a male average of 38·72 years, and a female average of 36·4 years.

The average proportion which the cerebellum, pons, and medulla bear to the encephalon is in the case of males as 1 is to 8·538, and in the case of females as 1 to 8·189.

The Pelew Islanders whose brains I examined, were four out of a canoeful of these people who were driven out to sea whilst fishing, and having lost their reckoning were picked up in a starving condition by a passing vessel and brought to Hong-Kong. They were taken care of by the Government, and the survivors ultimately returned to their homes. In the meantime the ones in whom we are interested died in the Government Civil Hospital, and were subjected by me to careful *post-mortem* examination. They were all males, and all died of pulmonary disease.

Case.	Age.	Enceph.	C. P. and M.	Case.	Age.	Enceph.	C. P. and M.
	Years.	oz.	oz.		Years.	oz.	oz.
1	32	48½	6½	3	25	49	5½
2	40	48	6	4	36	52	5½

This table furnishes an average encephalon of 49·375 ounces, and a C. P. and M. average of 5·875 ounces for an average age of 33·25 years.

The ratio of the C. P. and M. to the encephalon is as 1 to 8·404.

The Bengalee constable had an encephalon of 54 ounces, and C. P. and M. of 6½ ounces, which is in the proportion of 1 to 8.

Judged by the popular standard of weight of brain for wealth of wit, these people should all have been possessed of superior intellectual powers. The Chinese males should have been at least Mandarins, and the Pelew Islanders should surely have held high posts in the government of the limited kingdom of Pelew. But upon examining the brains more carefully, the solution of the problem involved in the want of correspondence between the capacity of the skull and capacity of intellect was at once rendered apparent. The primary convolutions of the cerebrum were too well defined, there being a marked deficiency in the number and depth of the secondary gyri, and an almost Simian symmetry of the two hemispheres—this was especially the case in the Pelew brains. In other respects the brains were

fairly developed, the frontal lobes projecting anteriorly well beyond the olfactory bulbs, and the occipital lobes covering the cerebellum. In the Pelews, however, the temporo-sphenoidal lobes were rather short, and the island of Reil more than usually visible.

Although destitute of any means of accurately measuring the depth of the grey matter of the cerebral convolutions, I am convinced that it was appreciably shallower than is the same structure in the average European.

Of course of the amount of intellect displayed during life by the 16 Chinese whose brains I weighed I can say nothing, but judging by their fellows of the same order, I am I think justified in placing it very far down on the intellectual scale at least as regards *acquirements*. Of the *capacity* of the Chinese coolie class for learning I am not inclined to speak so lightly, but on the contrary, am convinced of their natural aptitude in this direction.

The skulls of the Pelew islanders were markedly dolichocephalic. One, of which I preserved the measure, was 7·4 inches in its greatest length, and 5·5 inches in its greatest breadth, being in the proportion of 74 to the length taken as 100. All my other measurements, together with two of the Pelew skulls which I cleaned and carefully preserved, were lost at sea in the wreck of the "Mongol," much to my chagrin.

The Pelews were rather short, slight men, with fair muscular development, good teeth, and presenting quite an orthognathous profile.

The hair was dry, harsh and frizzy, standing up from the head in one case as much as 18 inches. The nose was straight, and the tip prolonged downwards beyond the *alæ nasi* after the Papuan manner. No hair on face. The lower extremities were tattooed closely in a geometrical pattern from the middle of the thigh to the middle or lower third of the leg. The ears were slit for ornaments, and had evidently sustained heavy ones, as they were much elongated and distorted. Their favourite posture was squatting, and they showed a rooted objection to remain covered up in bed.

The only explanation which I can offer of the large size of the brain in these cases is that it was essentially musculomotor in function,—the Chinese especially being very liberally endowed by nature with muscular tissue, much more so indeed than any European nation;—that it was in no wise an index of the amount of intelligence possessed is, I think, sufficiently clear.

DISCUSSION.

Mr. DISTANT:—This short paper is a valuable one in anthropology, as every fresh fact which bears upon the average weight of brains of other races of mankind is greatly to be desiderated. The brain weights of these 16 Chinese men and women are exceedingly interesting in two respects. Firstly, the general height of the average weight, and, secondly, which interests me the more, the considerable difference between the weights of the male and female brains, a subject I have already had the honour of bringing before the Institute. Both these facts are somewhat inter-dependent, as it seems now well established that there is a greater difference between the average weight of the male and female brain in the larger brained peoples of civilised areas than exists between the sexes in the smaller brained or more uncultivated and primitive races. This cannot be ascribed to the physical conformity of savages being more on an equality between the sexes. Professor Rolleston, in his paper on "The People of the Long Barrow Period," describes their skeletons as exhibiting in the males an height of about 5 ft. 6 in., as against a height of 4 ft. 10 in. attained by the females. A similar disproportion may be seen between the sexes of the Andamanese, as shown in the plates to Dr. Dobson's paper in our Journal, and further evidence of the same kind can be found by any one who cares to search for it. These tables being actually weights of brains, and not merely capacities of skulls, are the more valuable on that account, but the average appears very high, which for these 16 Chinese is—

For men	50·45 oz.	} Mean of series 48·89 oz.
„ women	45·45 „	

Now the researches of Dr. Barnard Davis on 33 Chinese skulls, made by filling those crania with sand, which was afterwards weighed, with an allowance of 15 per cent. for drainage, &c., was—

For 25 men	47·87 oz.	} Mean of series 47·00 oz.
„ 8 women	43·71 „	

This shows not only a lighter average, but also, as is usual in such cases, a less disproportion between the sexes, but there can be little doubt that racial types of brain weights are valuable in relation to the extent of the series from which they have been made. As regards the great weights of these 16 Chinese brains, which Dr. Clapham tells us have a somewhat Simian superficiality, we must remember that the average is the result of a short series, and that whereas no great mental work has been found to be achieved by a brain below the average in development, yet a large brain may exist without being the organ of uncommon intelligence and mental power. I will merely express a hope that the cause of physical anthropology may be advanced by more papers of this kind, written by equally competent observers.

MR. MOGGRIDGE: The intellectual capacity does not, I believe, depend so much upon the size of the brain as upon the number of its convolutions. Very low down in creation the earliest manifestation of brain occurs in a simple thread of grey matter. The first advance is indicated by the formation of ganglia, *i.e.*, swellings out of that thread at certain distances. Rising still in the scale, the head becomes the receptacle of the brain. Finally that mass of brain is convoluted, and the greater the number of those windings and turnings, the greater the opportunity naturally afforded for the development of the intellect.

ON RIGHTHANDEDNESS. By MR. SHAW.

IF asked what part of the body seems chiefly affected by advancing civilisation, I should be inclined to reply that it is the right hand.

At first sight the four-handed mammals may be thought to have an advantage; but because four hands are employed both for prehension and locomotion, while in man there is one pair of organs for each; man's two hands are worth more than the ape's four. As man rises from the rudest stages—such as digging roots, hunting, and tending cattle, to arts which are highly mechanical—the right hand becomes a more special and serviceable organ than the left, so that the loss of it to an engraver, a clerk, or an artist, would be a much more serious affair than it would be to a drover, who could clutch his stick or gesticulate to his dog almost as well with the one as the other. Admitting that, physiologically, there is a slight reason for the preference of the right hand; all our tools and fashions lend themselves to encourage its further dexterity. Screws, gimlets, &c., are made to suit the supinating motion of the right hand. Tools of the scissor kind are also made of the right hand, and I have seen a print-cutter's gauge made specially for a left-handed person fetch a very low price when it came to be sold. The slant in writing, the shed of the hair in boys, the place of buttons and hooks in clothes, and the system of writing from left to right, all seem related to right-handedness.

In drawing, the pupil is recommended to begin at the uppermost corner of the left hand, where the ornament is of a small and repeating character, so as to avoid fingering the part already finished. I used to be able to detect my left-handed boys when learning to write, if they had used the left hand against orders, by the writing either being straight or slanted the wrong way. Most boys know that it is easier drawing a

profile with the face looking towards the left hand ; yet in looking over the hieroglyphs in the British Museum the faces will be generally found towards the right.

I believe there is a constitutional reason for the preference given to the right hand, but I also believe that habit has strengthened nature's tendency, and that as the touch of the hereditary Hindoo weaver has become proverbially fine, and his eyes short sighted, so the aptitude of the right hand over the left is greater with advancing civilisation, than in a state utterly savage. At that period of a child's life, when creeping seems a more natural mode of progression than walking, there is no apparent dexterity of the right hand more than the left, and when man was almost without arts, I can believe his state to have been very nearly ambi-dexter, or perhaps rather ambi-sinister.

The elephant has been known to employ one tusk more than another in rooting, &c. It is on that account called by the Arabs the "servant," and is not so much esteemed by the traders as being oftener broken or mutilated.

When I asked Sir Samuel Baker which tusk, the right or the left, went by the name of servant, he informed me that it was the right tusk generally, but the exceptions to the rule were far more numerous than was the exception of lefthandedness with human beings.

We have no reliable statistics of the proportion of left-handed to right, either among ancients or moderns. If Judges xx, 15, 16 is to have any weight in the matter, the proportion of left-handed in the tribe of Benjamin seems to have been greater than at the present day.

Lefthandedness is very mysterious. It seems to set itself quite against physiological deductions and the whole tendency of art and fashion.

Prof. Buchanan of Glasgow, who wrote an able memoir on Righthandedness, in 1862, thinks that lefthandedness may be due to transposition of the viscera, and tells me that Dr. Aitken found such a case. But surely transposition of the viscera must be far rarer than obstinate lefthandedness. In cases of left-handed persons which I have examined, the limbs of the left side were proportionally larger, just as those of the right side are in normal cases. The greater aptitude as well as size of the left foot was also to be noted, as well as the fact of the exception being hereditary. I may mention in opposition to Professor Buchanan's theory of transposition of the viscera, or at least of the great arteries of the upper limbs accounting for lefthandedness, that several cases of transposition of viscera are recorded in which the persons affected were righthanded.

DISCUSSION.

MR. DISTANT: Though righthandedness is hereditary and almost universal, there is considerable doubt whether it is not nevertheless a positive disadvantage to the development of the race. From the researches of Dr. Brown-Sequard in particular, we know that the power of reasoning depends upon the left side of the brain more than on the right; an injury to the left side of the brain being more or less fatal to proper reasoning, as a lesion on that side is also concomitant with *aphasia*. The left side of the brain is also superior in size, and receives a larger share of blood than the right. The emotional faculties are likewise shown to be centred in the right side of the brain, as the reasoning powers are in the left. It is scarcely necessary to repeat the well-known physiological fact that the two sides of the brain and the two sides of the body react on each other from opposite sides. Now in exercising principally the right side of the body, Dr. Sequard considers we develop principally the left side of the brain, which thus becomes the chief controlling centre, whilst if the left side of the body was used in an equal proportion to the right, the two sides of the brain would be equally developed, and who can doubt that such must be a positive advantage to the race. The question of righthandedness is thus a deeper one than that of mere hereditary habit, and touches that truly anthropological subject *intelligence*, its limits and its causes, of which we still know so little.

Memoir on the MENTAL PROGRESS OF ANIMALS during the HUMAN PERIOD. By MR. SHAW.

VERY effective rhetorical passages could be selected from our classical writers elucidating the change wrought by the human race on the face of nature. Certainly the contrast of seas over-spread with ships; lands intersected by railways, roads, and canals, or covered with arable fields and towering cities, is, compared to uncultivated heath, primæval forest, and lonely sea, a very vivid one.

But it is not so much the change wrought by our race on mountains, seas, and rocks of adamant, as the change effected by man on the forms of life that is most to be wondered at. The relation of organism to organism is a relation the importance of which can scarcely be understated.

It is a common belief that the instincts and intelligence of the lower animals is, within certain narrow limits, fixed, unchangeable, and unprogressive. Such statements take too much for granted. The conclusion from many facts gleaned in connection with the subject point differently. The relative size of

skull of many of the earlier and middle tertiary quadrupeds to that of their existing representatives, warrants us in concluding that the former had less brain-power.

Much of what we term cunning in the mental disposition of animals will be found to have been sharpened and made tangible in quadrupeds and birds, owing to the new necessities imposed upon them by man the tamer, or man the destroyer.

For it is under one of these two characters that man approaches animals, affecting them in the most complex and vivid manner. No bird or quadruped with the docility and tractability of the dog, with the highly susceptible and generous nature of the horse, and the wariness and boldness of the fox, rat, rook, or sparrow, has been found in the lonely oceanic isles, or in the untrodden prairie or forest, free, or all but free from human influence. This is not because in these quarters such animals could not exist, for after being imported thither, as the horse into South America, or the rat in New Zealand, they have thriven and multiplied, but because the original fauna had no opportunity for the improvement of its wits by coming in contact with an enemy or friend so complex, so dreadful, and so ingenious as a human being.

One of the first impulses communicated to the wits of wild animals is that derived from the sense of new wants. Now, this is what man supplies by the cultivation of his fruits and cereals. A feast is spread before quadrupeds and birds, richer and more nutritious than that supplied by the frugal hand of nature. But this banquet is guarded by its possessor, and often becomes a baited trap in which the simple thief is caught and perishes. With the more sagacious robber the matter is different.

A very slight increment of sagacity is often enough to turn the scale, and this quickness of wit is again met by improvement of trap. Both improvements go on slowly. Necessity on the side of the wild quadruped and on the side of the savage is the mother of invention. Gradually wary, vigilant animals, as having the best chance of surviving, hang round the skirts of kraals and wigwams, approach in twilight the crops near stockaded villages, prowl about places of interment, lodge in sewers, enter cellars; and, keenly alive to every sign of danger, multiply in spite of poison, trap, and gun, and in spite of trained animals of its own and allied species, and of that division of labour which gives us special hunters. It is these two conditions—man enlarging the means of livelihood, and at the same time more keenly aiming at the life of those who would share his harvest—that gives a new importance to brute cunning, an importance which could not be of such primal consequence in a

world of comparatively stupid creatures in a world into which man had not yet arrived.

The fear of man is a slowly-acquired instinct, both by birds and mammals. Travellers in South America have struck down strong-winged birds from trees with poles. I recollect the shyness of a pack of seals basking on the long low rocks of the coast of West Kilbride, Ayrshire. They plunged into the ocean long before I could approach near enough to observe their habits. How different from this were the seals observed by members of the Challenger Expedition in the lonely oceanic isles, who gambolled with their calves, allowing the stranger's foot almost to be set upon them. The wolf-like dog of the Falkland Islands came quite near the crew of Byron's vessel. Compare these stupid traits with the admirably organised plundering expeditions of the Abyssinian baboons—the nocturnal adventures of elephants in quest of water in the dry season, or the rude laws and customs known and acted upon, for self-preservation, of the half-wild dogs of Constantinople, the Peninsula, and the East, wherein the care of the weak and young, the usefulness of sentries, the value of signals, and the difference between sham and real danger seem all to be understood.

These depredators know the usefulness of confusing traces of retreat and the value of a strong or inaccessible city of refuge.

In these circumstances it seems safe to conclude that man the thinker is at the bottom of their wiles, and that his acuteness has sharpened the faculties of his foes.

Hitherto we have glanced chiefly at wild or partially domesticated animals, and when we turn to our domesticated animals we can dimly see how slow the process and how immense the pains by which they have been tamed, from the time when our far remote ancestors instinctively killed the wilder and more troublesome ones, and preserved the most easily managed, just as Galton saw in Africa at the present day, that the irreclaimably wild beasts of a flock escaped or were utterly lost, those a little less wild were selected for slaughter, and those which seldom ran away, that kept the flocks together, and led them homewards, were longer preserved alive and had better chance to become parents of stock and bequeath their aptitudes to the future herd. The dog is perhaps the wisest of quadrupeds, and certainly his wisdom bulks in most considerations of his price. Old shepherds in my own pastoral district have expressed to me a conviction that the sheep-dog, even within the present century, from careful selecting, has become more docile and intelligent. Yet in other conditions, as in China, where the dog is kept like the pig for the table, he is said to be quite a stupid animal. An idiot cow may be tolerated in a dairy, though

even with such a one there is trouble scarcely worth its milk ; but an idiot collie is nowhere. Our domestic list of mammals, from having been acted upon by special circumstances, exhibits the highest brutal attainments, and none of them are so brutally degraded, or slow even at learning their names, as those caged from the untrodden forests.

In conclusion, were we in vision to behold that wonderful Miocene Age, when as yet no traces of man have been found on the planet, when vines and magnolias grew in Greenland, and long-armed apes traversed the forest of Europe, we should be warranted in believing that in their habits and manners of life, the higher birds and quadrupeds would be more uniform and less interesting than their surviving representatives who have been for ages exposed to the struggle for life with man. In the prehuman world there would be a dull monotony of hunger, fight, flight, and feeding—wherein the horn, the mailed coat, the heavy hoof and sharpened talons, and, above all, the terrible beak or tooth, would do work now accomplished by slyer agencies. Nor have brutes come out of the combat sole gainers in genius. Man has learned something from their ways. In the myths of nations their opposition made the earliest of heroes. Man's supreme faculty of language, so that now he can speak by telegraph, is also, ever widening the gulf which separates him from those inferior beings, whose docility he has developed, and whose cunning he has so gradually evoked.

Colonel Lane Fox, Mr. Hyde Clarke and others offered some remarks.

The meeting then separated.

ANTHROPOLOGICAL MISCELLANEA.

IN vol. v of the Journal of the Anthropological Institute, at page 408, *et seq.*, an account was given of a leaf-wearing race surviving on the Western Coast of India. As supplementary to that account, the following extracts from Col. Dalton's "Ethnology of Bengal," describing an apparently still more primitive leaf-wearing tribe, are of much anthropological interest. The Juangs are a tribe found in the most secluded tracts of Persia, speaking a language of the Kolarian family. Col. Dalton says of them: "The Juangs are in habits and customs the most primitive people I have met with or read of. They occupy a hill-country, in which stone implements, the earliest specimens of human ingenuity that we possess, are still occasionally found; and though they have now abandoned the use of such implements, it is not improbable that they are the direct descendants of those ancient stone-cutters, and that we have in the Juangs representatives of the stone age *in situ*."

"Until foreigners came amongst them, they must have used such weapons or none; for they had no knowledge whatever of metals. They have no word in their own language for iron or other metals. They neither spin nor weave, nor have they ever attained to the simplest knowledge of pottery. Their huts are amongst the smallest that human beings ever deliberately constructed as dwellings, measuring about 6 feet by 8, and very low, and even this scanty interior is divided into two compartments, one of which is the store-room. The Juangs cultivate in the rudest way, and in regard to food are not in the least particular, eating mice, rats, monkeys, tigers, bears, snakes, frogs, and even offal.

"The females had not amongst them a particle of clothing; their sole covering for purposes of decency consisted of a girdle composed of several strings of beads, from which depended before and behind small curtains of leaves. Adam and Eve sewed fig-leaves together and made themselves aprons. The Juangs are not so far advanced; they take young shoots of the Asan (*Terminalia tomentosa*), or any tree with long, soft leaves, and arranging them so as to form a flat and scale-like surface of the required size; the sprigs are simply stuck in the girdle, fore and aft, and the toilet is complete. The girls were well developed and finely formed, and as the light, leafy costume left the outlines of the figure entirely nude, they would have made good studies for a sculptor.

"They made their first appearance by night and danced by torch-light; it was a wild and weird sight. The men sang as they danced, accompanying themselves on deep-sounding tambourines;

the girls holding hands and circling round them in a solemnly-grotesque manner. The disarrangement of their leaves was a source of great anxiety to them, compelling them frequently to fall out of their places and retreat into the darkness to adjust their plumage.

"Next day they came to my tent at noon, and whilst I conversed with the males on their customs, language, and religion, the girls sat nestled in a corner together, for a long time silent and motionless, but after an hour or two had elapsed, the crouching nymphs showed signs of life and symptoms of uneasiness; and more attentively regarding them, I found that great tears were dropping from the downcast-eyes, like dew-drops, on the green leaves. On my tenderly seeking the cause of their distress, I was told the leaves were becoming dry, stiff, and uncomfortable, and if they were not allowed to go to the woods for a change, the consequence would be serious, and they certainly could not dance. It was a hot, dry day, and the crisp rustling as they arose to depart confirmed the statement.

"When they returned, arrayed in fresh leaves, we induced them to perform a variety of sportive dances, some quite dramatic in effect, and it was altogether a most interesting 'ballet.' In one figure the girls moved round in single file, keeping the right hand on the right shoulder of the girl in front; in another with bodies inclined, they wreathed their arms and advanced and retreated in line. Then we had the bear dance. The girls, acting independently, advance with bodies so much inclined, that their hands touch the ground: thus they move not unlike bears, and by a motion from the knees the bodies wriggle violently, and the broad tails of green leaves flap up and down in a most ludicrous manner.

"The pigeon dance followed. The action of a love-making-pigeon when he struts, pouts, sticks out his breast, and scrapes the ground with his wings, was well imitated, the hands of the girls doing duty as wings. They concluded with the vulture dance—a highly dramatic finale. One of the men was made to lie on the ground and represent a dead body. The girls, in approaching it, imitated the hopping sidling advance of the bird of prey, and, using their hands as beaks, nipped and pinched the pseudo-corpse in a manner that made him occasionally forget his character and yell with pain. This caused great amusement to his tormentors. In the evening, seeing the women return from work with dishevelled hair, dusty bodies, and disordered attire, i.e., leaves somewhat withered, was like a dream of the stone age, but each lady brought back with her fresh material for her evening dress.

"The Juangs have no terms for 'God,' for 'heaven,' or 'hell,' and, so far as I can learn, no idea of a future state. They offer fowls to the sun when in distress, and to the earth to give them its fruits in due season; they have no obligatory religious ceremonies. The Juangs are divided into tribes and exogamous. They burn their dead and throw the ashes into any running stream; but erect no monuments, and have no notion of the worship of ancestors;

their mourning is an abstinence of three days from flesh and salt. They swear on earth taken from an ant-hill—a sacred object—and on a tiger-skin.”

There are several stories to account for their leaf-wearing habits, but apparently of Brahmanical concoction, told for the Juangs rather than by them. Their own idea simply is, that the fashion of dress should never change, and that for women it should be simple and cheap. The males have, however, abandoned leaves of late, and use in lieu the smallest quantity of cotton cloth that can be made to serve the purposes of decency. They appeared to Col. Dalton the most primitive of all the tribes he encountered, and he seems to think that in them we have a veritable survival and example of a prehistoric people, *in situ*, as he expresses it.

DISCOVERY of a DUG-OUT CANOE in the THAMES at HAMPTON COURT.

TOWARDS the commencement of the present month, June, 1877, a boatman of the name of Walford fishing in the river just opposite Hampton Court Palace discovered a large block of wood, as it appeared to him, embedded in the river bottom, near the bank on the side opposite to the palace. Being very familiar with this part of the river on account of his boats being kept for hire on the opposite side, and knowing that the block in question must be a new arrival in this spot, he determined to hawl it up. He had repeatedly sounded the river bottom in all directions, and nothing of the kind had attracted his observation up to that time; the block in question must, therefore, have been recently uncovered or must have been washed there from some part of the river higher up. On bringing it to the surface it was found to be part of a canoe of oak dug out of the solid tree, and in an advanced state of decay. Some portions were wanting, but sufficient remained to determine its size and form. Having heard of the discovery through the kindness of Lord Arthur Russell, M.P., I went to see it on the 29th of the month, about three weeks after its discovery. It is flat-bottomed, the bottom rising slightly towards the front and stern, the bow is rounded, the stern has evidently been square, but the back-piece is wanting; the sides are perpendicular, 15 inches in height, interior measurement, and the top has been level from end to end, not rising at the bow or stern; the greatest width, interior measurement, taken along the flat-bottom, is 2 feet 6 inches, but this diminishes in front to 2 feet at the place where the scooped out bow commences.

One side only is perfect from the bow for a distance of about two-thirds of its length, the whole of the starboard side is deficient except at the bottom; the sides and bottom are about 2 inches in

thickness; the stern is strengthened along the bottom at 1 foot from the end by a raised ridge or "knee," 3 inches in width by $1\frac{1}{2}$ in height, carved out of the solid; whether this ridge ascended the sides or not cannot now be ascertained, as the sides are wanting in this part; towards the bow on the perfect side, at about 2 inches from the top, is a circular hole 2 inches in diameter, which may have been used to fasten a stay, or may have served for the loop of a rowlock. The total length of the vessel from stern to stern is 14 feet, and the whole is carved out of one piece. The surface of the oak having been exposed to the sun for some time, was cracked and peeled so that it was impossible to discover any marks of the tool by which the interior had been excavated, and it is to be feared that further damage may be caused by exposure. Canoes of this form have been occasionally found elsewhere, and Sir William Wilde mentions the form with the rounded bow and square stern as one of three varieties that are frequently found in Ireland. The ridge curved out of the solid, appears to be common to all the forms, and was, no doubt, intended to give strength.

The original position of the canoe is not difficult to determine. The river between the bridge and the palace makes a re-entering bend on the south side just below the spot where the Mole runs in. Large quantities of the delta ground at the point were washed away last winter by an unusually strong flood, and there can be little doubt that the canoe which had originally grounded and become covered at the point, had then been washed down with the earth for a distance of about 100 yards into the place in which it was discovered. Walford also informs me that when the water is low, two rows of piles may be seen in the bottom, crossing the river, one at the point and the other at the spot near which the canoe was found. Many flint and stone celts, he tells me, have in his time also been found at this spot, showing that, in all probability, this place was much frequented during the stone age, or, at any rate, the age in which stone implements continued in use,* and proving, as in so many other instances of prehistoric discoveries in the Thames, that the river has changed its course but little, if at all, since that remote period. The bearing of this upon the question of the erosion of valleys by their rivers is important, and any evidence which tends to throw light on the length of time that rivers have flowed in the same channels, is worthy of record on this account, apart from the archæological interest that may attach to the objects discovered.

A. LANE FOX.

* My informant described these implements in such a manner as to leave no doubt of their being Celts, and stated that they were, to the best of his belief, found only in this spot.—A. L. F.

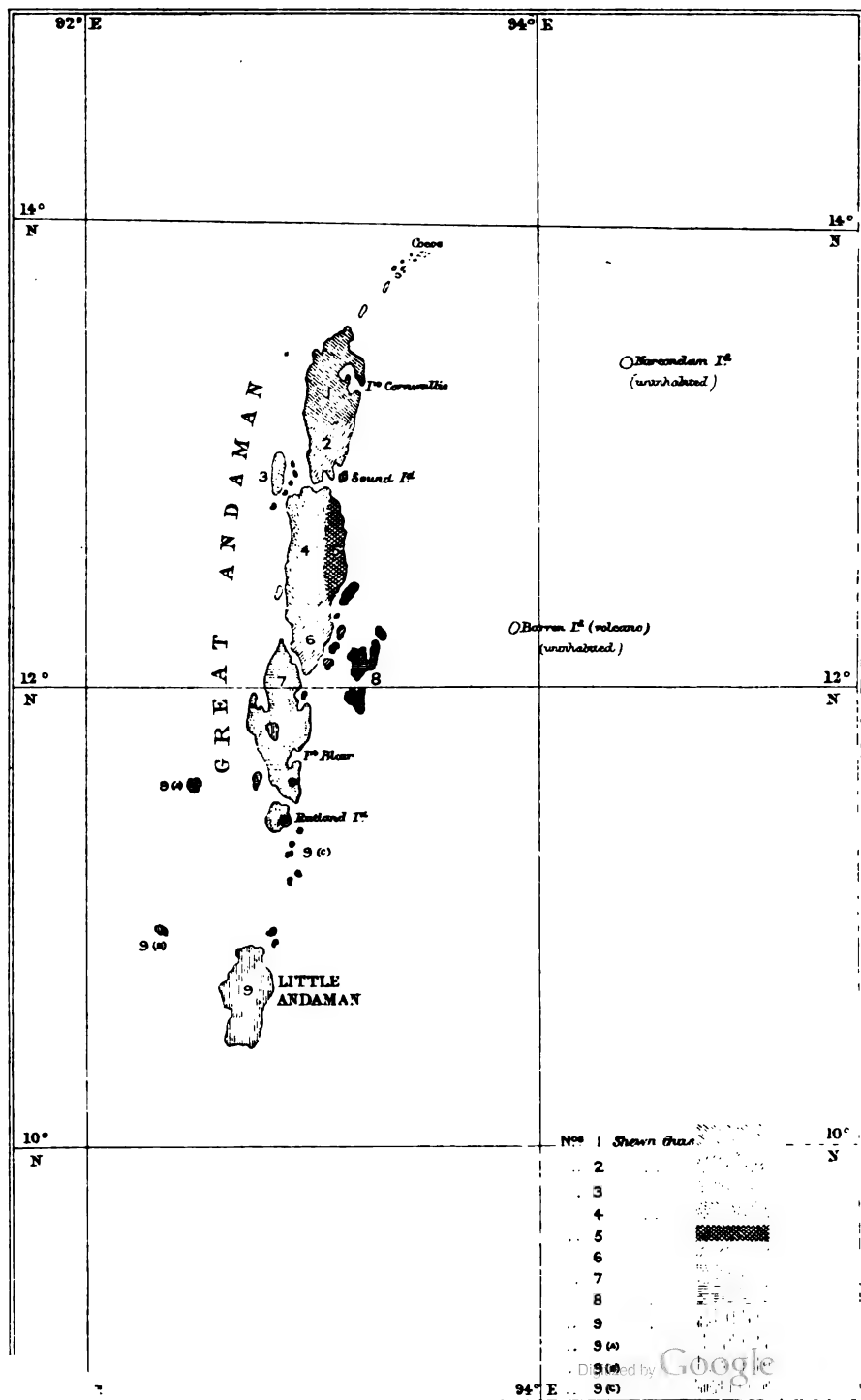
The ANCIENT BURIAL GROUND at KINTBURY.

A NOTICE of the ancient burying-ground at Kintbury by Professor Rupert Jones having appeared in the *Journal*, vol. vi, p. 196, the following account of a further examination of the cemetery by Mr. Walter Money of Newbury has been communicated by Prof. Rupert Jones.

These graves, which are cut in the chalk, appear to have extended over the whole area between the present footpath and the River Kennet. The greater part has now been excavated. As mentioned by Professor Jones, the graves were sunk to the depth of about 3 feet. Since that gentleman's communication, another cist has been met with, containing three or more skeletons, which having been disturbed when I saw them, the original position of the bodies could not well be ascertained. Near the remains I found sherds of pottery, the jaws and tusks of the boar, with other animal bones; and amongst the earth which was thrown out I picked up a rough flint implement, being a coarse flake which would serve for both knife and scraper, but near the bottom of the grave I detected some iron slags, which prove, I think, that these interments are not pre-Roman.

The sloping banks of the chalk pit are strewn with fragments of Roman pottery—urns and other vessels; the ware is black, brown, and red, but principally of a dark-bluish grey colour on fracture, and somewhat coarse in texture. One piece, which is glazed, has an ornamentation formed of parallel intersecting lines, and is of the kind of pottery much used for sepulchral purposes. Fragments of glass vessels also occur. Amongst some 30 or 40 pieces of ware which I have found on this spot, are two portions of hypocaust tiles, one a hollow flue tile with vertical lines, and the other flanged, with waved scoring, together with a fluted brick, the plaster on the outer face still adhering to it. Tiles were frequently used in Roman graves, but I am not competent to say if tiles such as represented by these fragments were ever applied to such purposes.

The dead during the Romano-British period were disposed of as in ancient British and Celtic times, both by inhumation and cremation; and so indiscriminately were these usages adopted in England that both are found in the same burial places, and indeed, as in those of the Celtic period, in close proximity to each other. The suggestion therefore naturally occurs, might not this have been a Roman burial place, and are not those bits of pottery fragments of sepulchral urns, and the graves now brought to light, those of the Saxon people who continued to bury their dead on the site of the Roman cemetery until the time of their conversion to Christianity? The whole character of this burial ground, so far as my slight knowledge of such subjects informs me, is quite in accordance with that of Anglo-Saxon cemeteries in the south of England. In East Kent, for instance, where they are found in the greatest abundance, the Anglo-Saxons chose for the burial place of their particu-



lar tribe the top of a chalk down, where they cut their graves into the chalk exactly as they appear to be cut on the summit of Kintbury Cliff. Long after the establishment of Christianity in this island, the ecclesiastical laws and canons complain of the difficulty of restraining the Christianized Anglo-Saxons from carrying their dead to be buried in the neighbouring unchristian cemeteries of their pagan forefathers, therefore the proximity of the church to this burial ground at Kintbury is to be accounted for by the fact that such a building would instinctively be placed near a spot so hallowed by its associations.

That Kintbury was in Roman occupation admits of little doubt; it was a minor station probably, on the road from Aqua Solis (Bath) and Cunetio (near Marlborough), which proceeded through Hen's Wood to Hug's Ditch, and through Lawn Coppice, Cake Wood, Standgrove, Hungerford, and Kintbury to Spinae, this last station, I believe, occupying the present site of the town of Newbury. This last place has been most productive, when ground has been disturbed, of Roman antiquities, and is situate at the point of convergence of the great ways from Londinium (London), Calleva (Silchester), Corinium (Cirencester), Sorbiodunum (Old Sarum), Venta Belgarum (Winchester), Aqua Solis (Bath), and other important Roman roads. The camp on Speen Hill, as observed by the Rev. J. Adams at the Arch. Congress in 1859, "has nothing to prove a distinctive Roman origin," and may be regarded as British; but from its important position it was no doubt utilised by the Romans as a military outpost.

The strongest argument against Kintbury being a Saxon burial place is the entire absence of the usual objects accompanying their dead; and unless we conclude the pottery found was used for this purpose, or that these early settlers at Kintbury were compelled by their poverty to let their dead take their chance in the mysterious life into which they believed they were going, there is really nothing in the graves I have examined to conclusively settle the question as to the people to whom this cemetery belonged.

I may add that this burial-ground has been recently inspected by those distinguished antiquaries Canon Greenwell and Colonel Lane Fox; and several of the skulls and bones have been sent to Prof. Rolleston at Oxford, to whom, in the interest of science, Sir Richard Sutton, the owner of the land, has given permission to make these investigations.

The ANDAMAN ISLANDS. By E. H. MAN, Esq. Communicated by
Col. A. LANE FOX, F.R.S.

The map, Plate III, and a statement accompanying it, of the distribution of the several tribes inhabiting the Andaman Islands, have been forwarded to Colonel A. Lane Fox, F.R.S., by Colonel Man, and were sent to him by his son, Mr. E. H. Man, who is in charge of one of the native homes in the Andamans, together with a transla-

tion of the Lord's Prayer in the vernacular of the South Andamans. Mr. Man is preparing a vocabulary of the South Andaman language, which promises to be of great anthropological value, and he has promised to draw up a paper on the anthropology of the islands, which will be sent to the Institute. Mr. Man proposes shortly to make a tour of the islands, commencing with the Little Andamans, where there have been three bloody encounters between the Europeans and natives during the past few years. He will endeavour to enter into friendly communication with them, and leave some presents, after which he will start for the South Centinel (*see map*), and ascertain if there are signs of life there. He will then proceed to the North Centinel, which is known to be inhabited, and it is said by the same tribe as the Little Andamans, but as there is 40 miles of sea between the two islands, he thinks they must (judging by past experience) probably speak a different dialect from that of any other tribe in these islands. About ten years ago an attempt was made to land upon this island, but the inhabitants proved hostile. From the North Centinel he proposes to go to a village near Flat Island, on the west side of Middle Andaman Island, where he will land a few natives belonging to the tribe there, who have been partly civilized by Europeans, together with presents of rice, corn, cooking vessels, &c. The huts here are said to be large and substantial, and very different from anything met with elsewhere. He will then proceed to Interview Island, and from thence make the circuit of the North Andamans, visiting some tribes already known there, and return by Port Cornwallis and Sound Island. On his return he hopes to be able to visit a place called Wotâ-Emîda, which is somewhere on the south-east corner of Middle Andaman Island, and which, according to the tradition of the natives, is the scene of the Creation. They say that there is a stone there on which Tawmoda (the first man) wrote many commandments, and a history of Creation, which is still to be seen in hieroglyphics, but which none are able to decypher. This rock is said to be on the sea shore, and Mr. Man hopes to be able to photograph it, the people of that part being friendly. Being now able to converse with ease in the South Andaman language, he has obtained from one of the natives an account of a deluge, the details of which will be communicated to the Institute on a future occasion. The photographs of natives of the Andaman and Nicobar Islands which Colonel Man has kindly forwarded to Colonel Lane Fox contain much useful information.

The NAMES of the SEVERAL TRIBES INHABITING the ANDAMAN ISLANDS.

North Andaman.	<ol style="list-style-type: none"> 1. Âkâ Châriâr 2. Âkâ Jârô .. 3. { Âkâ Ked'e Interview Island tribe 	<ol style="list-style-type: none"> Being their own name for themselves. They (i.e., all three) are called "Yêrê wada" by the tribes near Port Blair.
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|------------------|--|-------------------------|---|--|
| Mid.
Andaman. | { | 4. Awko jûwai.. | { | Being the names by which they are called by our "junglies" (<i>i.e.</i> , the South Andaman tribe). |
| | | 5. Âkâ kôl .. | | |
| | | 6. Âkâ Bôjigîâb | | |
| | | 7. Bôjingîjîda .. | { | <i>i.e.</i> , their own name for themselves.
Small off-shoots of the Little Andaman tribe (Jârawada) exist in the localities marked; they live apart from and at enmity with our tribe. |
| | (South Andaman, including Rutland Island tribe). | | | |
| | | 8. Bala wada. | | |
| | | (Archipelago tribe.) | | |
| | | 9. Jârawada. | { | Including North Centinel (9a), South Centinel (9b), Cinque Islands (9c), and intervening islets; also in Rutland Island and N. and S. of Port Blair. <i>Vide</i> the parts marked. |
| | | (Little Andaman tribe.) | | |

It is impossible at present to do more than guess at the numerical strength of each tribe. There is every reason to believe that the tribe with which we are best acquainted (South Andaman) numbered considerably more on our first settlement here in 1858 than it does now. It at present probably numbers about 500 or 600, but I have never had means of visiting the encampments at the northern extremity of South Andaman. The Little Andamaners are believed to be the most numerous, but whether they number 200 or 2,000 (more or less) no one can at present say. The belief of those who have visited the numerous islands and made inquiries on the subject is that the whole group contains probably some 5,000 or 6,000 souls. These are probably pretty equally distributed, the most thinly populated in proportion to its size being, I should fancy, this island (South Andaman), where the exposure induced by our clearings, coupled with the increased mortality during the past 19 years, consequent on their change of habits, has possibly reduced the number of the inhabitants by one-third or even more. They are scarcely ever allowed to taste liquor of any kind. Tobacco, of which they are passionately fond, is the only thing in which they are indulged which may be calculated to affect their health. These remarks refer to some 300 of their number living near Port Blair, and in a lesser degree to those living over ten miles from the harbour. The condition of those living more than 30 miles from Port Blair has probably not been appreciably affected, except favourably, by our settlement here, for we have done little more for them than supply them from time to time with presents of iron, bottles, fruit seedlings, matches, beads, looking-glasses, &c., being all articles which they highly prize. It will of course be understood that I have only attempted to show *approxi-*

mately the extent of territory occupied by each tribe. As those inhabiting adjoining districts are more or less on friendly terms with each other, it often happens that they regard certain islands or suitable camping grounds which are situated midway between their respective territories as neutral soil. Hence they state that they are unable to point out definitely in some cases where the border line between certain tribes is supposed to run.

The Lord's Prayer translated into the Vernacular of the District (South Andaman), by B. H. Man, August, 1876.

Pûl-ûga lîa ârla-lik-yâb.

God his prayer.

Hê maw-rô kôktâr-len yâtê môllârdûrû ia ab-mâyôla. Ngia
O Heaven in (is) who our (lit. all of us-of) Father. Thy
ting-len dai-îj-i-mûgû-en-inga itân. Ngôlla-len môllârdûrû meta
name to be reverence paid Let You (to) we all our
mâyôla ngenâke ab-chânag iji-la bêdig. Maw-rô kôktâr-len tegi-
chief wish for supreme only and. Heaven in is
lût-malin yâtê ngia kânîk, kâ-ûbada ârla-len ârla-len èrem-len
obeyed which thy will in the same way ever (daily, always) earth on
itân. Ka-wai môllârdûrû-len ârla-naikan yât mân. Môllâr-
Let This day all of us to daily (lit. daily-like) food give. We all
dûrû mol-oichik-len tigrêl yâtê ôloichik-len ârtidûbû, kichi-
us (to) i.e. agst offend who them to forgive in
kan-naikan met âryenami ârtidûbû. Môllârdûrû-len ôtig-ûjûnga
the same way our offences forgive us all (to) be tempted
itân ya-be, dôna môllârdûrû-len abja-bag-tek ôtrâj.
let not but us all (to) evil from deliver.

Ngôl kichi-kan kânake.

(Do) thou thus order (i.e. Amen).

God's Prayer.

O Father of us all Who is in Heaven.

Let (may) reverence be paid Thy name.

We all wish for Thee as our supreme and only Chief.

Let (may) Thy will which is obeyed in Heaven be ever in the same way (obeyed) on earth.

Give us all this day our daily food.

Forgive (us) our offences in the same way (as) we forgive them who offend against us.

Let none (lit. not all) of us be tempted, but deliver (protect) us all from evil.

(Do) Thou thus order (it).

Lit. So be Thy will.

Lit. So be it. Lit. Amen.

a	as in	woman.
a	"	bird, cur, mirth, mercy.
â	"	father.
ā	"	(Scot) man.
e	"	met.
è	"	(Fr.) père.
ê	"	fête.
i	"	fit.
î	"	police, oblique.
u	"	put.
û	"	brute.
ò	"	pot.
o	"	redolent.
ô	"	mole.
oi	"	boy, foible.
aw	"	aught, law.
au	"	house, cow.
äu	"	(Germ.) haus.

RECENT ANTHROPOLOGY. Compiled by W. L. DISTANT.

"Observations on the Nile between Dufi and Magungo." By Col. C. E. Gordon. *Proc. Roy. Geo. Soc.*, vol. 21, p. 48. Col. Gordon writes, "At the distance of 50 miles to the south of Dufi the natives wear each a skin, farther on they clothe themselves with the bark of a tree. I believe that, taking Ratatchambé as a centre, and describing a circle with a radius reaching to Fashoda, that circle would include all the tribes that go entirely naked—a zone outside of that circle would include those half clad—and a zone outside that would contain the tribes who fully clothe themselves."

"Description of a Trip to the Gilgit Valley, a Dependency of the Mahárájá of Kashmir." By Capt. H. C. Marsh. *Journ. As. Soc. Beng.*, vol. 45, p. 119. "The name Boté, as the people call themselves, is not to be confounded with the Bhútias or Tibetans. The name is derived from the cap, so that all who wear this head-dress, be they Shí'ah, Sunní, Astorí, Gilgití, or Chilásí, Shín, or Teshkun, are Boté; although the difference of language is great between all these countries, especially the latter of the two castes, if one might so call them; the Shín is the highest, and forms a comparatively small, but influential body throughout Astor, Gilgit, Guaris, and parts of Chilas. They are careful to intermarry only among themselves, but of late years the Teshkun, or mixed breed, is unavoidably increasing, owing to the pressure put on by the Kashmirís, who all like to intermarry with Shín families if possible." A national dance is described, pp. 124-5; method of making wine, p. 134; manufactures and dress, pp. 127-137: unacquainted with the manufacture of pottery, p. 135.

"An Account of the Island of Bali." By R. Friederich. *Journ. Roy. Asiat. Soc.*, vol. 9, p. 59. This is a continuation of the subject from vol. 8, p. 218; and this instalment is altogether devoted to the "religion of the island of Bali," which is treated very exhaustively under the following arrangement of subjects:—"The creation," "religious ceremonies and offerings," "dress of the Panditas," "dress of the gods," "feasts," "further details of the religious worship," "Rësis" (a religious dignity), "Trimûtri" (trinity), "cremations," "castes," "Brahmans," "Xatriyas" (the second caste), "Wesyas" (most important caste).

"On the Galchah Languages" (Wakhí and Sarikolí). By R. B. Shaw. *Journ. As. Soc. Beng.*, vol. 45, p. 139. "The dialects, of which a brief sketch is here given, are spoken in valleys which descend to the east and west respectively from the Pamir Plateau. They are members of a group of kindred dialects which prevail about the head waters of the Oxus, the *Sarikolí* being the only one of them whose home is on the east of Pamir, on one of the affluents of the Yárkand River." A comparison is first made between the Ghalchah and the Dard dialects; this is followed by "the sounds and their representations." The dialects of Sarikol and Wakhán are not found in a written form. They exist only as spoken by the people. For all literary purposes Persian is used by the sufficiently educated. A sketch is given of Wakhí and Sarikolí grammars, a comparative table showing the connection of the Ghalchah language with neighbouring tongues, and a very copious vocabulary of Wakhí and Sarikolí words.

"On Ruins in Makrán." By Major Mockler. *Journ. Roy. As. Soc.*, vol. 9, p. 121. "Makrán is the name of the southernmost portion of the country marked Baluchistán in our maps." These ancient remains the author considers Scythian, and perhaps monuments of the ancestors of the Bráhui tribes who now occupy the eastern border of Baluchistán. Excavations were made which discovered pottery, charcoal, bones, flint knives, &c.

"Indian Burial Mounds and Shell-heaps near Pensacola, Florida." By G. M. Sternberg, Surgeon U.S. Army. *Proc. Am. Ass. (Detroit)*, 1875 (*Nat. Hist.*), p. 282. These burial mounds were two in number. In the first, called "Bear Point Mound," there were great accumulations of "shell-heaps," which were almost entirely composed of oyster shells, and from the fact that these were the shells of large and well-developed oysters only, Mr. Steinberg considers it not improbable that "our aboriginal predecessors" may have cultivated them, or that at least the mode and time of procuring them was regulated by law or custom. As regards the age of these shell-heaps, decayed stumps of live-oak trees, of from two to three feet diameter, are found in many places *in situ* above the shells. From the remains in this burial mound the author considers that cremation was practised before burial. His theory is,

"The mound was built by gradual accretion in the following manner:—That when a death occurred a funeral pyre was erected on the mound upon which the body was placed. That after the body was consumed, any fragments of bones remaining were gathered, placed in a pot and buried; and that the ashes and cinders were covered by a layer of sand brought from the immediate vicinity for that purpose. This view is further supported by the fact that only the shafts of the long bones are found, the expanded extremities, which would be most easily consumed having disappeared; also by the fact that no bones of children were found, their bones being smaller, and containing a less proportion of earthy matter, would be entirely consumed." In the second, "Santa Rosa" Mound, the skeletons were complete.

"On the Peopling of America." By Aug. R. Grote. Bull. Buff. Soc. of Nat. Science, vol. 3, p. 181, 1877. In a previous paper the author had already arrived at the conclusion that we should find colonies of Arctic man upon mountains in the temperate zone of North America had all the conditions for his survival on these elevations been fulfilled in his case as they have been in that of certain plants and animals, and that the Eskimos are the existing representatives of the men of the American glacial epoch. He had also considered that glacial man would be found to have suffered an equal fate with the fauna of the ice-period by a study of migrations. These migrations Mr. Grote proposed to distinguish as "*a primitive migration*, one influenced solely by physical causes affecting man's existence, and which must have been in more extensive operation in early times when he was unprovided with means of his own invention against unfriendly changes in his surroundings. *A culture migration*, one arising out of a certain stage of intellectual advancement, when the movements of man are determined by ultimate and not immediate considerations. Besides these was distinguished an *accidental migration*, which man has submitted to against his will."

Mr. Grote does not believe that man originated in America, but rather that America has always been for man the new world, and is in favour of the view that man entered upon possession of the American continent during the Pliocene and before the ice-period had interfered with a warm climate in the north, the idea being suggested that the ice-period acted as a barrier to inter-communication between Asia and North America. The part hitherto allowed by anthropologists to accidental migration in the peopling of North America is considered as exaggerated. It is proposed by Mr. Grote that this peopling was effected during the Tertiary period; that the ice modified races of Pliocene man existing in the north of Asia and America forced them southward, and then drew them back to the locality where they had undergone their original modification, and that other than Arctic man may have existed across the main belt of this continent during the Pliocene period, and that his sub-

sequent intellectual development, as we find it recorded in the West, Mexico, and South America, &c., is the result of his environment acting upon his isolated condition.

"Observations on the Membral Musculature of *Simia Satyrus* (Orang), and the comparative Myology of Man and the Apes." By W. S. Barnard, of Canton, Ill. Proc. Am. Ass. (Detroit), 1875 (Nat. Hist.), p. 112. This paper commences with the remark that considering the many dissections of *S. satyrus*, made by eminent anatomists, our knowledge of its membral muscles and their homology with those of man and the higher apes remains astonishingly incomplete. Mr. Barnard prefers to compare the limbs in a position extending laterally, at right angles to the vertebral column, and parallel to each other, believing that all appearances of either "syntropic" or "antitropic" symmetry in the limbs are secondarily developed for functional purposes, and that care must be taken not to give those characters too great morphological value. He is also convinced that muscles are much more constant as to the relative position of their origins than as to that of their insertions; that the position of the origin has the greater morphological and homological value, and this leads him, contrary to the systems of anatomists generally, to base the main groups of muscles on the groups of origins as limited by the osseous segments and parts on which they exist. Each of these are to be subdivided into subordinate groups, based on the groups of insertions as limited by the osseous segments or bones, of which he gives a tabular scheme. A fact of the greatest importance set forth in this paper is that most (and probably all) special, apparently distinct (so called "proprius") muscles of the fore and hind limbs belong to, and are morphological parts of, certain of the so-called "communis" muscles, from which they have become differentiated off, or isolated by loss of intermediate parts, so as to appear like distinct muscles in many animals, while in others they are still found in their primitive condition, being mere factors of "communis" forms, as is shown in these studies; e.g., *extensor indicis longus proprius* and *extensor medii digiti* are but parts of an *extensor digitorum communis profundus*; *flexor pollicis longus proprius* is only a part of *flexor digitorum communis profundus*; *extensor hallucis brevis* is a factor of *extensor digitorum brevis*, &c., &c. In the relationship of man to the apes the following conclusion is arrived at by Mr. Barnard, "that physiologically and teleologically man stands farther from the higher apes than those do from the lower ones of their kind, whereas morphologically the higher apes rank nearer to man than to the lower apes." The muscles of *Simia satyrus* are then exhaustively considered *seriatim* and comparatively.

"On the Mechanism of the Intervertebral Substance, and on some Effects of the Erect Position of Man." By A. H. Garrod, M.A. Proc. Zool. Soc. Lon., 1877, p. 48. An explanation is given of the mechanical advantages in the structure of the disks of fibro-elastic

tissue which intervenes between the bodies of the vertebræ, and attention is then drawn to one or two points which are associated with the erectness of the carriage of man, in contradistinction to the horizontal and oblique attitudes assumed by lower animals.

Mr. Garrod considers "the simple curve, concave ventrally, of the vertebral column of the higher apes was most certainly shared by the human progenitor. In the young child it is found to exist. In its attempts to assume the upright carriage this progenitor must equally certainly, have thrown the centre of gravity of its body directly above the hips, to do which it was necessary to bend the spine backwards. On account, however, of the thoracic region being rendered rigid by the attachment of its cage of ribs, and the sacrum being unmodifiable from its ankylosis, this flexion of the spine could only occur in the neck and loins; consequently the spinal flexures in man may be explained upon the assumption that the dorsal and sacral ventral concavities are the similar curves of the ancestral type, retained on account of the mechanical obstructions to their removal, whilst the ventral convexities of the yielding cervical and lumbar regions are the means by which the centre of gravity in the erect position is carried to a point directly above the hip-joints.

Mr. Garrod further remarks that this assumption of a vertical attitude by a creature originally differentiated for a horizontal position of its body, has produced but marvellously slight inconvenience. If it had resulted in many, man could hardly have survived. One or two are, however, considered by the author as certainly traceable to this cause, including the painful tendency to prolapse, antiflexion, and retroflexion of the uterus in women, as well as crural hernia in both sexes, and inguinal hernia in the male.

Other comparisons are made in this valuable anthropological communication.

The Straits Times and Overland Journal, dated Singapore, January 11, 1877, contains a notice and extracts from a pamphlet published by Messrs. Thieme and Company, Sourabaya, written by Mr. P. C. L. Hartog, and addressed to the Sourabaya Trade Club, containing short extracts from the report of the voyages of the steamer "Egeron" through the Malayan Archipelago to New Guinea and the "Papoea" Isles. On the first voyage of the "Egeron," Captain Hartog made an offer of a free passage to any official who might be deputed by the Governor-General of India to accompany him, and as the offer was accepted, an official report will doubtless be made upon the result. Amongst other interesting items may be mentioned some notes on the little known island of Timor-laut, situated between 7° and 8° S. lat. and 132° and 133° E. long. Agriculture prevails to some extent, maize and tobacco being cultivated. The natives are numerous, are a very lively and active people, and though they have been represented as crafty and treacherous, Mr. Hartog did not find them so, and also adduces, as an example of their character, that an English vessel was some time ago wrecked off the isle, and the survivors of the wreck were hospitably entertained by the

natives for a period of eight months. There unfortunately seems, however, to be no attempt to describe the physical peculiarities of these people.

These voyages being made purely for trading speculation, and the results apparently being very satisfactory, we may expect soon to hear very much more of the islands and their inhabitants, but at the same time we must remember the inevitable alteration in primitive manners and customs which soon ensues after the advent of the trading company. Mr. Hartog also visited the north-west and west coast of New Guinea, and remarks on the extreme fertility of the soil and the great quantity of nutmeg trees. Along the coast, he says, "are the camps of the natives, called Papuans, who have direct intercourse with the merchants of Macassar. This people get the nutmegs from the Alifurus, the owners of the nutmeg trees."

"Ethnical Periods." By Lewis H. Morgan, of Rochester, N. Y., *Proc. Am. Ass. (Detroit)*, 1875 (*Nat. Hist.*), p. 266. Mr. Morgan proposes the following classification of ethnical periods:—

<i>Periods.</i>	<i>Conditions.</i>
I. Period of savagery.	I. Status of savagery.
II. Opening period of barbarism.	II. Lower status of barbarism.
III. Middle period of barbarism.	III. Middle status of barbarism.
IV. Closing period of barbarism.	IV. Upper status of barbarism.
V. Period of civilisation.	V. Status of civilisation.
I. Status of savagery.	{ From the infancy of the human race to the invention of pottery.
II. Lower status of barbarism.	{ From the use of pottery to the domestication of animals in the Eastern Hemisphere; and in the western to the cultivation of maize and plants by irrigation, with the use of adobes and dressed stone in houses.
III. Middle status of barbarism.	{ From the domestication of animals, &c., to the manufacture and use of iron.
IV. Upper status of barbarism.	{ From the use of iron to the invention of a Phonetic alphabet, with the use of writing in literary composition.
V. Status of civilisation.	{ From the use of alphabetic writing in the production of literary records to the present time. It divides into ancient and modern.

"Arts of Subsistence." By Lewis H. Morgan, of Rochester, N. Y., *Proc. Am. Ass. (Detroit)*, 1875 (*Nat. Hist.*), p. 274. The author commences by remarking, "The same great fact that mankind commenced their career at the bottom of the scale and worked their way up to civilisation through growth of knowledge, is revealed in an expressive manner by their successive arts of subsistence. Upon their success in multiplying the sources and increasing the amount of food, the whole question of human supremacy on the earth depended." Mr. Morgan considers it probable that the great epochs of human progress have been identified, more or less directly, with the enlargement of the sources of subsistence. Five of the sources are enumerated:--

I. Natural subsistence upon fruits and roots in a restricted habitat.

II. Fish subsistence.

III. Farinaceous subsistence through cultivation.

IV. Meat and milk subsistence.

V. Unlimited subsistence through field agriculture.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

APRIL 10TH, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXV, No. 178.

From the EDITOR.—Matériaux pour l'Histoire de l'Homme, February, 1877.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Petersburg. Tome XXIII, No. 2, 4to.

From the AUTHOR.—Brochs and the Rude Stone Monuments of the Orkney Islands, By Dr. James Fergusson.

From the ASSOCIATION.—Transactions of the Social Science Association, Liverpool, 1876.

From the Royal Academy of Sciences, Amsterdam.—Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen, Tweede reeks Deel X; Jaarboek, 1875; Procès-Verbaal, 1875-6.

From the EDITOR.—Revue Scientifique. Nos. 40 and 41, 1877.

From the EDITOR.—Nature (to date).

The President exhibited two stone adzes from Burmah.

Captain Dillon exhibited flint arrow heads from Oxfordshire.

The President and Colonel Lane Fox remarked on the above exhibitions.

The following paper was read by the author.

VOL. VII.

ON SOME RUDE STONE MONUMENTS IN NORTH WALES.

By A. L. LEWIS, M.A.I.

LAST summer, during a stay of a few days in North Wales, I was enabled to visit some of the rude stone monuments with which the country abounds, and to observe the following particulars concerning them :—

In the park of Plâs Newydd, so beautifully situated on the Anglesea shore of the Menai Straits, stands a dolmen, pictures of which are perhaps more numerous than of any other rude stone monument, Stonehenge and Kit's Coty House possibly excepted. It has often been called a Druidic altar, but it is obviously a sepulchral dolmen, and was doubtless covered with earth or stones in part or entirely. It consists of two chambers in a line running about N.E. and S.W., but not communicating with each other. The larger is at the north-east end, and has six upright stones still in position, two others being prostrate; its dimensions are about 9 feet by 8 by $4\frac{1}{2}$ high, the extreme measurements of the covering stone being 12 feet by 10 by $4\frac{1}{2}$ thick. The smaller chamber is about 6 feet by 4 by $2\frac{1}{2}$ high, and is covered by a stone 6 feet square by $1\frac{1}{2}$ thick; four of its supporters remain upright, and one is fallen, while a few fragments lie round about, which probably formed part of the walls of the chambers. The total length of the dolmen is about 24 feet; some of the stones are of a slaty nature, in consequence of which two have split beneath the weight of the covering stones. At a little distance in a north north-westerly direction is a pentagonal flat-topped stone, 5 feet high and 8 feet in thickness, which might possibly have served as an altar, but which has no apparent connection with the dolmen.

On about the middle of the top of the Great Orme's Head is a tumulus, from 30 to 40 feet in diameter, and 10 or 12 feet high, at the southern edge of which stands a little dolmen, consisting of four upright stones, forming a pentagonal chamber, about 5 feet across and 4 high, the side to the south-east being open. This chamber is only partly covered by a capstone 4 to 5 feet in diameter and not more than one foot thick, and in its present appearance and dimensions is singularly like some of the Antas of Portugal, described and figured by M. Pereira da Costa, but it may be only part of a larger structure. Its most peculiar feature is its position, not in, nor upon, but by the side of a tumulus. It is not improbable that it may have been used like the Indian dolmens recently described by Mr. Walhouse, and which it seems to me to resemble, as a kind of shrine or covering for small objects of a sacred character. In this case its position by a probably sepulchral tumulus might indicate

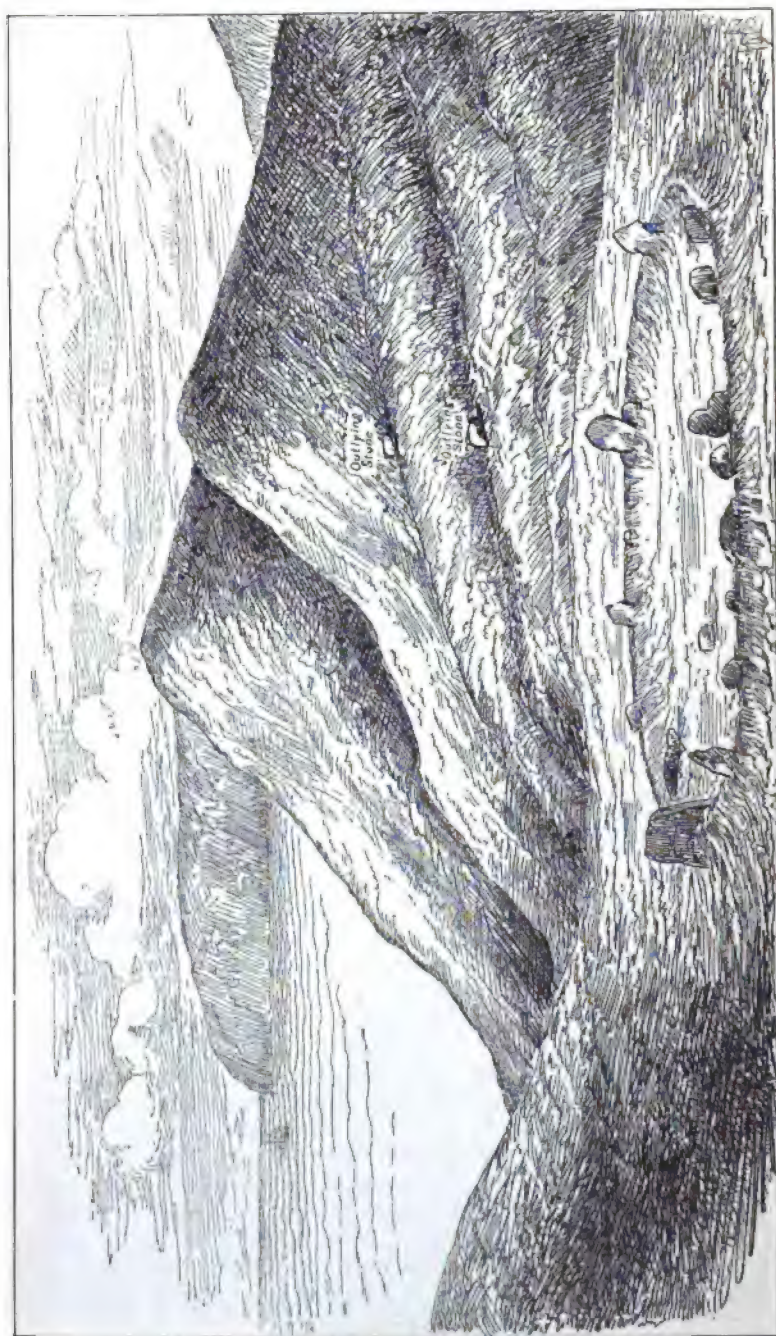
that it was a sort of memorial chapel. According to Stukeley, Kit's Coty House stood at the end of a long barrow, of which no trace now remains; but this dolmen is much more like a sepulchral chamber than Kit's Coty House, which in my opinion never differed materially from its present condition.

The third monument of the kind which I visited, is situated at Tyn-y-coed farm, Capel Garmon (above Bettws-y-coed), and differs from the two I have already described. It consists of three chambers, in a line nearly east and west, and communicating with each other. The western and central chambers are about 10 feet long, and the eastern $8\frac{1}{2}$; the width varies from $5\frac{1}{2}$ to $8\frac{1}{2}$ feet, and the height is about 5 feet, $3\frac{1}{2}$ of which are below the present surface of the surrounding tumulus. The western chamber is constructed of large, thin, slaty slabs, and is covered by a similar stone, 14 feet by 11, and not more than one foot thick. The other chambers are not now covered, but have preserved in them much more of the small, loose, flat stone work with which the spaces between the larger stones were carefully filled up. The north-east corner of the central compartment is cut off by two stones, and forms a little chamber by itself, and from the southern side of the central compartment a passage, some six yards long by one wide, runs to the outer edge of the tumulus. This passage is constructed, like the chambers, of slabs mingled with small uncemented masonry, and, as it narrows towards the top, the walls may have been continued upward till they met, at a height of 4 or 5 feet. This passage may remind us of the "portals," described by Dr. Lubach in connection with the "Hunebedden" of Holland, being, like them, at the south side of, and at right angles to the chamber to which it conducts. Perhaps if it were carefully explored with the spade it might disclose some few relics of the builders. The remains of the tumulus are now surrounded by an uncemented stone wall, which did not, however, appear to me to be part of the original structure.

At Aber, by the side of the road to the waterfall, is a single stone, 5 feet high by 3 by 2, in the middle of a circle, 18 feet in diameter, of small stones piled together and overgrown with vegetation. Looking nearly due south from this stone the beautiful fall of Aber is clearly visible, and looking in the opposite direction the sea appears between two hills, the stone being placed in the direct line between the two, but with regard to its antiquity and object I cannot say anything with certainty.

The last monument which I have to describe, is a circle called Y Meineu Hirion,* on the Cerrig-y-Druidion, or hill of the Druids, next Penmaenmawr. I have not been able to ascertain

* See wood-cut on page 120.



how long the name Cerrig-y-Druidion has been in use, but if it could be traced back for even three centuries it would go far to show that the association of the Druids with the rude stone monuments is not, as has been suggested, a mere invention of the antiquaries of the last century. Y Meineu Hirion is composed of a small low bank of earth and stones forming a circle 80 feet in diameter, on which stood some larger upright stones; of these seven now remain upright, their dimensions varying from 3 to 5½ feet in height, and from 1 to 5 feet in breadth and thickness, and one, 8 feet long, lies prostrate; there are also sundry fragments and stumps. This monument, described in Gough's Camden's *Britannia* as one of the most remarkable in North Wales, is not unlike the Roll-rich in character, but is smaller, and, so far as regards the circle itself, even insignificant. There is, however, one feature of very great importance, which is not noticed by Gough or Camden, but to which I will now call your attention. In my former papers on Rude Stone Monuments, I have dwelt often and at some length on the very frequent, if not entirely uniform, occurrence in connection with our British circles of a special reference to the north-east, either by single stones placed in that direction or otherwise, and on the probability, deducible from this circumstance in particular amongst others, that these circles were places of resort, or in other words, temples, for sun-worship; and I am glad to be able to say that this little circle of Meineu Hirion is no exception to this rule, but a rather curious exemplification of it. At Stonehenge and the Roll-rich, the outlying stones are so placed as to stand between the circle and the sun as he appears above the horizon on the morning of the longest day, but on the north-east of the circle of Meineu Hirion, the ground falls rapidly away into a deep hollow, on the other side of which are lofty hills, yet, 500 feet to the north-east, down in the valley, is a large stone, now prostrate, 9 feet long, by 5 by 2, and in the same direction, but about 400 feet further, is another prostrate stone, 9 feet long, by 5 by 4. It might be suggested that, as the sun would not light these stones up in rising on Midsummer Day, the solar theory would be at fault, but for the fact that they lead the eye directly to two hills on the other side of the valley, over the top of one of which, or more probably between the two, the sun would rise on the longest day; and, even were it not so, the reply would be obvious that customs often survive without strict regard to their original causes, and I think therefore that I am fully justified in claiming this case as a strong proof in support of what I have so frequently urged on former occasions.

About 250 feet in a north-westerly direction from this circle

is a collection of small stones, without form or probable use that I could discover, but which I presume is one of the smaller circles said to exist in the neighbourhood of Y Meineu Hirion.

DISCUSSION.

Mr. MOGGRIDGE said: South Wales is especially rich in the so-called Druidic remains; and as far as my own experience of cromlechs goes, I can testify in support of what has been so well said by Col. Lane Fox, that, out of many that have been visited by me, not one presented any indication of having ever been covered by a mound. The cromlech and a small space around are sometimes included by a ditch; which would appear to negative the existence heretofore of a mound. It has been suggested that if ever that structure was covered, the earth may have been used as manure, but many of these cromlechs are on the wild mountain-top, and far away from any cultivation.

Mr. WALHOUSE observed: That the small cromlech placed at one end of the long tumulus much resembled the rude shrines noticed by him in Southern India, where a capstone supported by a back and two side-slabs covered a rough image or lingam stone. Supposing the tumulus represented in the model to be sepulchral, the cromlech, which appears never to have been covered over by earth, might have stood as a shrine or sacellum at its end. The model of a large composite cromlech, apparently half-sunken in the earth, reminded him of the great cromlechs in Guernsey, that on l'Ancrese Common and the one called l'Autel du Grand Sarazin, which were certainly originally subterranean and sepulchral. The other model exhibited by Mr. Lewis, a large tabular stone, supported by lumps rather than slabs, seemed very like some remarkable structures on a mountain-top in the province of Coory in South India, which strongly suggested devotional or sacrificial rather than sepulchral purposes, and showed no traces of interments or of having been ever covered by a mound.

Mr. LEWIS, in reply, said there were no doubt stone chambers that had never been intended to be covered, and there were probably others which had been left unfinished from some cause. He believed, in some parts of India, chambers were covered to the level of the capstone, leaving that stone itself exposed, and if such had been the case in Europe, those chambers which had been so slightly covered, would probably be the first to be denuded. The *Plâs Newydd* dolmen might have been such a one, but he had no doubt it was intended to be more or less covered, and the ground inside was still a foot lower than the park outside. The *Tyn-y-coed* dolmen was still buried half its height in a tumulus.

The President and Col. Lane Fox, and others, took part in the discussion.

Models constructed by the Author of the dolmens described by him were exhibited in illustration of the paper.

The following paper was then read by the Director:—

CURIOUS COINCIDENCES IN CELTIC AND MAORI VOCABULARY.
By REV. WM. ROSS, F.S.A.S., M.R.I.A.

It may be difficult to find a race that does not, or did not at some stage of its history, believe itself to be aboriginal, its language the primitive speech, and its people autochthones *αυτοχθόνες*. The more cultivated and literary of their chroniclers, historians, and scholars, have endeavoured to trace connexions and affinities between the tongues of their own people and those most highly esteemed, or generally regarded as of the highest antiquity. No language has in this respect, perhaps, a more curious literary history than the Celtic. David Malcolm of Duddington, thought that Hebrew, Syriac, Arabic, and Talmudico-Rabbinic were largely indebted to the Celtic for some of their distinguishing characteristics, and that this ancient tongue was fitted to throw light on their structure and idiom. That it was closely allied to the original language spoken on the Isthmus of Darien, he had little doubt of. Twenty-three words, most of them twisted into the most incongruous forms to suit his purpose, led him to this conclusion. One writer traced a connection with the Jaloffs in Africa, and another with the Leni-Lenappe of North America. Others maintained it was the parent tongue of Greek, Latin, Sanscrit, &c. Some maintain it is Aryan, and some as strongly assert it is not. I shall not now enter into that question, although I think Dr. Prichard's work as well as the labours of subsequent writers in the same direction has decided the question once for all.

The following curious coincidences in form and meaning between the Celtic and Maori, while not given as a proof of affinity in the ordinary acceptation of the term, are suggestive, as prompting inquiry in a different direction, a direction in which philologists have as yet done little, if we except some of the interesting papers read for several years by Dr. Hyde Clarke, one of the Secretaries of this Section.

Celtic.				Maori.
Cù, dog.	..	..	..	ku-ri, dog.
Duine, man	..	..	..	tane, a male.
Bean	} woman.	..	..	wahine, Venus.
Mna				
Iasg, fish	..	..	..	ika, fish.
Tri, three	..	..	..	toru, three.

Naag, tie	nika, tie.
Geur, sharp	oro, sharpen.
Thig, come	tiki, to fetch.
Chi, see	kite, see.
Gairm, call	karanga, to call.
Seadh, yes	se, yes.
Cend, first	katahi, for the first time.
Cia, as, whence	kohea, whither.
Thing, towards	whaka, in a direction to.
Agus, and	hoki, and also.
Ma, if	me, if.
Miann, desire	amene, desire.
Anmhuinn, weak	anewa, weak.
Eirich, to rise up	ara, to rise up.
Gradh, love	aroa, love.
Suiridh, to woo	arnaru, to woo.
Tuthadh, to thatch	ato, thatching.
Cabhaig, hurry	kaika, to be in a hurry.
Cach, remainder	koha, remainder.
Cùb, to bend	kopi, to bend.
Coire, a kettle oven	kori, oven.
Gearradh, cutting	koripi, to cut.
Meanglan, branch	manga, branch of tree or river.
Teth, hot	} .. tahu, to set on fire.
Teothadh, warm	
Uth, udder	u, udder.
Rann, verse	raranga, verse.

The list might be very considerably extended. We know nothing of these words to connect them with Celtic. We do not know as yet their composition, roots, or history. They are coincidences worthy of at least being noted. Do they not suggest to us the possibility if not probability that many languages and families carry with them still some of the characteristics of a pre-historic and primeval speech, the common patrimony of the human race? They carry the form and feature, but the colour is different. So the language may still have much of a primitive character, while the exigencies of time, circumstances and relations have tended to mould, or modify words and expressions which originally own the same parentage.

A report by Mr. A. Mackenzie, on the Australian Languages and Customs, forwarded to the Institute by Her Majesty's Colonial Office, was then read, by the Director, but its publication is unavoidably postponed, from press of matter, till the next Number of the *Journal*.

APRIL 24TH, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors of the same:—

FOR THE LIBRARY.

From the Academy.—Atti della R. Accademia dei Lincei, Vol. I, No. 4.

From the ASSOCIATION.—Journal of the East India Association. Vol. X, No. 2.

From the AUTHOR.—Sketch on the Origin and Progress of the United States' Geological and Geographical Survey of the Territories. By Prof. F. V. Hayden.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris. Vol. XI, No. 4.

From Prof. F. V. HAYDEN.—Bulletin of the United States Geological and Geographical Survey of the Territories. Vol. III, No. 1; Catalogue of Publications of ditto. Second edition.

From the EDITOR.—Revue Scientifique. Nos. 42 and 43, 1877.

From the EDITOR.—Nature, to date.

Dr. JOHN RAE read the following paper:—

ESKIMO MIGRATIONS.

IN the month of March, 12 years ago, two papers were read before the Ethnological Society, in which very different views regarding the migrations of the Eskimos were expressed. In the one, conclusions were arrived at and deductions drawn from known facts, without calling in the aid of fancy. In the other, theory and imagination * were the chief elements, supported by

* Terms used by the author.

one or two facts of little or no value, towards verifying the writer's opinions, as I shall endeavour to point out.

Mr. Clements R. Markham, the author of the last-mentioned paper, upheld the idea that the Eskimos, called Arctic Highlanders, inhabiting the north-west part of Greenland, reached that place in almost a direct line *vid* the Parry Islands, from Siberia, without touching the American continent, as the following extracts will show.

See "Arctic Papers for Expedition of 1875," folio 167.

"The ruined yourts of Cape Chelagskoi (in Siberia) mark the commencement of a long march; the same ruined yourts again appear on the shores of the Parry Group. A wide space of 1,140 miles intervenes, which is as yet entirely unknown. If my theory be correct, it should be occupied either by a continent or by a chain of islands, for I do not believe that the wanderers attempted any navigation, or that they indeed possessed canoes at all. They kept moving on in search of better hunting and fishing grounds along unknown shores, and across frozen straits, and the march from the capes in Siberia to Melville Island, doubtless occupied more than one generation of wanderers.

"There is some evidence, both historical and geographical, that the *unknown tract* in question is occupied by land. A chief of the Tuski nation told Wrangell, that from the cliffs between Cape Chelagskoi and Cape North, snow-covered mountains might be descried at a great distance to the north. There are geographical reasons, which have been pointed out by Admiral Osborne, for the supposition that land, either as a continent or as a chain of islands, extends to the neighbourhood of the Parry group. The nature of the ice floes between the north coast of America, off the mouths of the Colville and Mackenzie and Bank's Lands, leads to a conclusion that the sea in which such ice is formed must be, with the exception of some narrow straits, land-locked.

"The ice is aground in 7 fathoms water, and the floes even at the outer edge, which are of course lighter than the rest, are 35 to 40 feet thick. The nature of the ice is the same along the west coast of Bank's Land. Such awful ice as this was never seen before in the arctic regions. The only way of accounting for its formation, which must have taken a long course of years, is that it has no sufficient outlet, and that it goes on accumulating from year to year. It must therefore be in a virtually *land-locked sea*, and this of course implies land to the north, as well as to the east, south and west.

"Here then is my bridge by which these people passed over

from the frozen tundra of Siberia to the no less inhospitable shores of Prince Patrick Land, to the head of Wellington Channel and Baffin's Bay, and far into the unknown region. The theory of Eskimo migration is thus illustrated by facts in physical geography !!"

Before going further, it may be asked where are these facts in physical geography which Mr. Markham mentions with so much confidence ?

We have not a single fact, except it be the report of the Tuchi Chief to Wrangell, that land had been seen far to the north of Siberia, which at the utmost stretch of the imagination could not be much more than 100 miles distant, or only one-twelfth of the distance separating Siberia from the Parry Islands.

With regard to Admiral Osborne's views as to the great accumulation of large masses of ice on the west and north-west of the Parry Islands being caused by the sea being land-locked, no evidence could be more unfortunately chosen to prove Mr. Markham's theory, as it indicates to my mind the very opposite state of things, namely, a vast extent of ice-covered sea, having little land, as I shall attempt to explain later on.

Let me now quote from Mr. Markham's paper, printed in the "Ethnological Transactions of 1865, folios 125 to 137."

"First, the Arctic Highlanders are by *evidence*, *not* branches of any Eskimo tribe of America or its islands. The American Eskimos never go from their own hunting range for any distance to the inhospitable north. The American Eskimos live in snow huts, the Arctic Highlanders in igloos built of stone. The former have bows and arrows, the latter have none. The Boothians have sledges of rolled up sealskin, the Arctic Highlanders have sledges of bone."

I must endeavour to reply to Mr. Markham's arguments in favour of his theory, taking them in detachments as it were.

Mr. Markham says that the American Eskimos always live in snow houses. In the first place, this is at variance with fact, for all the Eskimos of America, west of the Mackenzie, along a coast line of many hundreds of miles, build their winter houses of wood.

There are probably none of the human race that so readily adapt themselves to circumstances as the Eskimos. Assuming it as a fact, that they had formerly lived on the shores of Siberia, we find that their winter dwellings there had been formed of stone, earth, bones, &c. ; these bones are of such description as to prove that large marine animals formed a great portion of the food of the people when in that locality, and consequently they had an abundance of oil and blubber to burn and keep their youurts warm. When these people in their

migrations crossed Behring Straits to America, they found quantities of drift wood, which they learnt, probably very soon, to use for house building, although up to the present time (according to Dr. Simpson) they burn no wood, but have oil lamps for heating and lighting purposes, because walrus, whale, and seal abound along this coast. When some distance east of the Mackenzie River, the wood and the whale, and the walrus disappear wholly, or are not easily obtainable. Then what does the Eskimo do under these changed circumstances? He cannot build a wooden house, for he has not the materials; if he built a house of stone, earth, bones, &c., such as his ancestors used in Siberia, he has no oil with which to heat it; his chief food now being venison and fish which yield no blubber. He therefore does the wisest thing he could do, and builds a snow hut, which he knows is much warmer and more comfortable than a stone one, when he has no artificial means of heating it.

Wandering eastward, to the shores of Hudson's Bay, we find the natives still using the snow dwelling. But when they reach the Greenland coast, what happens? The Eskimos again finding themselves among animals that yield them the same kind of food and large quantities of fatty matter, as they are believed to have had (on the evidence of the bones of animals found there) at their old quarters on the coast of Siberia, resume their ancient form of winter habitation, because with fuel, it is warmer than the house built of snow.

One curious fact has struck me, and that is: the Eskimos from the Mackenzie River, westward to Behring Straits, use the large woman's boat or Oo-miak; eastward from the Mackenzie for a couple of thousand miles or so, no Oo-miaks are seen, until we come to Greenland and Hudson's Straits, where we again find them. One reason for this may be that when the Eskimos live chiefly on land animals and fish, they have not so much use for these luggage boats, which are sometimes large enough to carry several tons weight.

This is rather a long digression, but I hope you will excuse it.

The statement that the American Eskimos do not go far from their hunting range is not in accordance with fact, for I have known them travel northward some hundred miles in one season, and then had they heard of game still farther north, they would have followed it up.

The American Eskimos use bows and arrows, because they are the weapons best suited for killing most of the land animals which form their chief food; whereas the Arctic Highlanders employ harpoons and lances, because these are best for killing seals and walrus, &c., for which bows and arrows would be all but useless.

The Boothians use sledges of rolled-up sealskin, not from choice but of necessity, because they have little or no wood, and no large bones of the walrus or whale with which to construct them, as the Arctic Highlanders have.

Mr. Markham goes on to say, "In proving that the Arctic Highlanders are distinct from the American Eskimos, I do not mean that they are not all of the same race, but that they have had no communication, since their ancestors left Siberia, and crossing the meridian of Behring Strait, wandered to the eastward.

"The American Eskimo migrated at some remote period from Siberia, by way of Behring Strait. The migrations from the northern coast of Siberia were later. Their exodus took a distinct and more northern route along the coast of the Parry Islands to Greenland. We may infer that they (the Arctic Highlanders) did not come from the south, for the same reason that the American Eskimos have never gone north to the Parry Islands."

So much for Mr. Markham's opinions in 1865. Let us now hear what he says in 1876 (see "The Academy," 2nd December, 1876), when writing about the recent Arctic Expedition.

"The existence of this sea of mighty flocs to the north of Grant's Land, has caused a revolution in our notions of arctic geography, and has dissipated many cherished theories!! In the belief that there might be land, and occasionally navigable sea, over part of the unknown area, we had in imagination led the tribes which some centuries ago disappeared from Siberia, partly along the shores of the Parry Islands (an undoubted route), but partly also across the open polar sea and bird-frequented lands, which *inaccurate information* led us to expect in the far north. We now know that the latter was impossible. No wanderers ever crossed this sea of ancient ice.

"Those vestiges which are scattered so thickly along the shores of the Parry Islands and Bank's Land, were doubtless left by wanderers from Siberia, but their route must have been along the edge of the Palæocrystic Sea, not across its rugged and impassable surface.

"The emigrants must have travelled along the coast of North America, crossed the strait to Bank's Land, and so have found their way along the shores of Parry Islands, where such numerous vestiges of them remain, to Baffin's Bay, &c."

Thus the lapse of 12 years, or more probably the results of the recent Expedition, appear in a most unaccountable manner, to have changed completely every thought and opinion expressed by Mr. Markham in 1865, as the numerous and lengthy extracts from his writings show.

His geographical and historical facts, upon which he built so

fine a superstructure, he himself has thrown to the winds, and his imaginings, by his own showing, become the "baseless fabric of a dream," yet he endeavours to excuse his mistakes, by saying that he was led away by *inaccurate information*, information of "bird-frequented lands, &c.," of which no one could have known anything, for Mr. Markham tells us himself, that the whole distance of 1,100 miles from Siberia to the Parry Islands was "totally unknown;" where then can "the inaccurate information" have come from, unless conjured up by his own fertile imagination?

How the discoveries made by the Expedition of 1875-76, could have led to or produced so total a change in Mr. Markham's opinions, it is most difficult to understand, unless it be that he is desirous of showing that sledge travelling over these so-called ancient floes, is perfectly impossible to healthy experienced men, because it baffled a band of most gallant, but inexperienced sailors, not in health, but suffering from one of the most debilitating and painful diseases with which anyone can be afflicted. I give this reason, at a venture, for I really can find no other.

The scene of the labours of the recent Expedition was fully 600 miles distant at its nearest point from Mr. Markham's imaginary migration route, so that the state of the ice at or near the north shores of Grant's Land, could not have had the most remote bearing on the practicability of such route between Siberia and the Parry Islands, made apparently so easy by Mr. Markham 12 years ago.

Permit me to trespass a very few minutes more on your indulgence, by reading an extract from the paper read by me before the Ethnological Society in March, 1865, to which I have alluded.

"All the Eskimos with whom I have communicated on the subject, state that they originally came very long ago from the west, or setting sun, and that in doing so they crossed a sea separating the two great lands.

"That these people (the Eskimos) have been driven from their own country in the northern parts of Asia by some unknown pressure of circumstances, and obliged to extend themselves along the whole northern coast line of America and Greenland, appears to be likely, and that the route followed after crossing Behring Strait was of necessity along the coast eastward, being hemmed in by hostile Indians on the south, and driven forward by pressure from the west. When they reached the meridian of Bank's Land, they had in part crossed to it, and to Wollaston Land, and thence northward to the Parry Islands, on all of which we know that animal life in the form of musk cattle,

reindeer, and smaller game, abound. Travelling eastward, they finally reached Greenland by crossing the intervening straits and sounds, or by coming round by North Somerset, and thence across Lancaster Sound or Barrow Strait.

"An ingenious theory has been started, to endeavour to show that Greenland may have been peopled by the Eskimos coming direct across the ice-covered sea from Asia to Bank's Land and the Parry Islands, but the idea seems to have little to support it, beyond the supposition that there are many islands or much land not far distant to the north and west of these places. The reason assigned for this belief is the immense thickness of the ice forced on or near to the north-west shores of the Parry Islands, which it is supposed would drift away if not held in by land.

"From the fact of the very great accumulation of ice in this position, I should arrive at the very opposite conclusion, namely, that to the north-west and west there was, instead of land, a large extent of sea, and that the pressure of great bodies of ice driven by the prevailing north-west gales had forced it into large heaps, so hard and fast aground, that for a great length of time no winds from an opposite direction could remove it."

Such were my opinions twelve years ago, and their correctness has been rather confirmed than otherwise, by all that we have since learnt, even to the conversion of Mr. Markham himself.

A Discussion took place, in which the President, Mr. Hyde Clarke, and others took part.

Dr. RAE, in reply to questions by the President and others, said that he was not sufficiently conversant with the subject to offer an opinion of any great value as to whether the ancient people who had used the stone and bone implements found in France and elsewhere, were Eskimos or not.

That question could be better decided by those distinguished men who had made the subject of Anthropology their special study.

He should, however, infer that they were a different people, because, although the implements resemble each other, they do not do so more than might be expected, where a race of men, although not the same, have lived a similar kind of life, and had the same materials of which to construct their tools and weapons.

The stones of which the lamps and kettles are made is found at various parts of the coast, frequently some hundred miles apart, and these form a valuable article of barter by the Eskimos in the neighbourhood of such localities. These lamps are found in use along the whole north coast of America, from Behring Strait to Hudson's Bay, and also, he believed, in Greenland.

Mr. R. B. HOLT then read the following paper:—

The EARTHWORKS at PORTSMOUTH, OHIO, U.S.

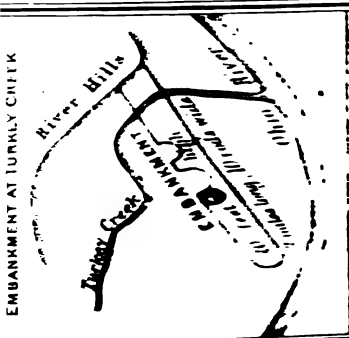
MR. G. S. B. HEMPSTEAD has sent a plan of the Earthworks at Portsmouth, Ohio, Pl. IV, and a pamphlet respecting them.

These works were evidently constructed by a very ancient people, and consist of extensive terraces, enormous mounds and ditches, long lines of parallel embankments, and models of animals on a gigantic scale. The terraces contain many hundreds of acres suitable for agricultural purposes, and were probably formed to facilitate such operations. The first rises 47 feet above the water level. The second 19 feet above the first, and the third 37 feet above the second terrace. About the centre of the third terrace is the principal mound, which rises in its highest part 328 feet above the water level. Its length, including the arms, is 20,014 feet, and the width at its base from 100 1,320 feet. The north and south ends have been cruciform.

To the west is a large cross now wanting an arm, while pointing towards the rising sun is a very long arm, which still retains the cross form most perfectly.

Mr. Hempstead considers this mound is artificial, because "The stratification of the adjacent hills is wanting in this, and because the quantity of earth that has been removed between it and the river, is about what would be required for its formation." A most extensive view is obtained from the summit, particularly down the Scioto valleys to the Franklin country. Along this route is a series of mounds, which Mr. Hempstead suggests may have been used as signal stations, and from this he infers that at the time of their construction, the whole district was under one government.

About two miles N.E. is an embankment from 12 to 15 feet high, about 2 miles long, and over 200 feet wide at the top. It is remarkable for having two semicircular indentations, and a mound near the middle of it. A short distance from the end of the long cross is an apparently defensive work, probably the citadel. It consists of a circle with four openings, facing N.E. and S.E., N.W. and S.W. The walls are now only about 2 feet high. Within this circle are two horse-shoe formations 12 feet high, and measuring 105 feet at the open ends. Outside the S.E. gate are two other horse-shoes, 3 feet high, and measuring 12 feet at the open ends. These, with other mounds in the neighbourhood, seemed formed to guard the entrance to the space between the parallel embankments, which begin here and run parallel S.E. for about 4 miles, much resembling the long



The animal mound is 450' from S. E. to N. W. and 500' from N. E. to S. The sides of the square 400'.



walls of a Greek colony. He says, "I examined them as early as 1806, when they were from 3 to 8 feet high. When riding over these embankments, my horse would frequently break through the surface, and sometimes fell. This occurred so often, that I became curious to know why they were so insecure. On examination, I found a cavity which had been occupied by two pieces of timber parallel to each other; these had decayed, and left the surface earth without support. This, with some other facts tending to the same conclusion, has convinced me that the parallel walls, and perhaps the mounds, were first constructed of timber, held together by cross ties, and then filled with surface earth. Constructed in this manner, there is sufficient material to have made a wall 4 feet thick, and 20 or 30 feet high. These dimensions seem a little out of proportion, and it would have been far easier to have constructed a wall of less height and greater thickness."

The embankments run down to the river, and are continued on the opposite side till they reach a large circular work, which was probably a temple of the sun. Apparently a mistake has been made in constructing this part, as about half way a slight deviation is made, in order that the entrance into the sacred circles may face due west. This way alone gives access to the centre of the structure, the north, south and east entrances terminating outside the inner ditch.

The outer circle measures 640 feet, the second one about 400, and the third about 300. In the centre of this innermost circle is a mound which rises 45 feet above the surrounding surface. It has a spiral graded way leading to the top, which measures 50 feet east to west, and 75 feet north to south. This probably was the high altar, and the ceremonies performed on it could be readily witnessed from the surrounding mounds. The temple then, consists of three embankments pierced by ways leading N.S.E.W., a centre mound and four ditches, the last to be passed only by the road leading from the citadel, the entire length of which was protected by parallel walls.

About a mile and half west of the temple is a circular embankment, about 6 feet high, and an inner ditch about 12 feet deep. It has a centre mound about 7 feet high and the entrance is from the south.

Beside it is an enclosure in the form of an irregular hexagon. It measures 120 feet by 75 feet. When first observed the embankment was 4 feet high, and the ditch, which is also inside, 3 feet deep. There are two entrances facing N.W. and S.E. Three quarters of a mile west is a mound 18 feet high, without either ditch or embankment.

All these had probably some connection with the temple.

From the end of the long cross the temple would mark the spot at which the sun rose at the winter solstice, and a square enclosure, situated N.W., would mark sunset at the summer solstice.

This enclosure has also four entrances, and they, like those of the temple, face N.S.E.W. Close beside it is an ovoid enclosure, measuring 459 feet by 390 feet. Within it is a mound in the form of a tapir. Whether this was an object of worship, a record of some event (like our own White Horses), or merely a work of art, cannot now be determined, but certainly such mounds were not sepulchral, as many have been removed without ever finding any remains of the dead.

In this locality were several iron works which are now obliterated. Among others were the remains of furnaces, broken stones, burnt clay, ashes and coal, and, on excavating for the Ohio and Erie Canal, large sheets of mica were found here deposited in piles as if for use. Some industry may have been carried on, but as no actual implements seem to have been discovered in connection with this people, more probably it was a place for sacrifices or for burning the dead. Besides the parallel embankments going S.E. from the long cross, there are others running N.W. and S.W. from an oval enclosure, situated about a mile to the west of the citadel. The N.W. ones reach the extreme west of the great mound. The S.W. ones terminate at the river, and in two places are expanded so as to form considerable enclosures. Small mounds are constructed at all the ends, as if to fortify the entrances across the river, and nearly facing the end of the S.W. parallels is what has been known as the Old Fort.

Of this Mr. Hempstead says, "The title 'Old Fort' I consider a misnomer. A careful examination of this work must satisfy anyone that it was never intended as a protection against enemies from without. It is placed far from what was the centre of population (and there are no evidences of any occupants S.W. of it for many miles), so had the people found it necessary to repair to this place for protection, they would have found it very inconvenient. Admitting that the parallel walls, extending S.W. from the main settlement, would have protected them in their retreat, a large river to pass would have been a great impediment to their progress. But the work was evidently never intended to keep anything out, and is calculated to keep anything in after it has once been decoyed or placed there. The whole work is commanded from the River Hills, which are in close proximity on the S.E. side, where the wall is only 2 or 3 feet above the adjacent surface, while on the inner side it is 25 feet in height.

An enemy having gained this eminence could annoy those within from all parts of the embankments, and could only be assailed from the gateways or the top of the wall. There are many strong reasons for believing that this structure was intended to entrap those large animals which roamed over the hills and ranged through the valleys at that time. There are long arms extending more than a mile N.E. and S.W., with parallels only about 100 feet apart, and numerous gateways which furnish abundant means of entrance from without. As regards the people, Mr. Hempstead says, "that there were two races, a dominant and a servile one, cannot be doubted; the skulls found in the small mounds are always brachycephalic, while others found in gravel banks and other places, where the interments were apparently made without ceremony, are of the dolichocephalic cast. Some sixty years ago I assisted in opening eighteen or twenty mounds, whose elevations were from 3 to 9 feet. In two of the small mounds we found two skeletons, in both cases a male and a female.

"In the others were found remains of the dead. In the larger mounds were proofs of cremation, charcoal, ashes, burnt earth and burnt bones, only the phalanges of the feet and hands remaining entire (Qy. why?). These were quite numerous, indicating that more than one body had been burned. An occasional lower jawbone in an entire state was found; these were so large as to pass freely over the lower jaw of the largest and best-developed young man of our company. Besides the mounds, large burial places are found. One field, containing six or seven acres, situated on the second terrace due west of the termination of the north-west parallels, was, fifty years ago, such a mass of human bones, that after ploughing, the surface was quite white with them; another field of eight acres is of similar character.

"Both these fields are very productive of stone axes, pipes, arrows, and spear heads, as well as a great variety of stone ornaments and implements. There are also isolated interments in the gravel beds, which lie a few feet below the surface near the top of the second terrace, and here entire skeletons are frequently obtained.

"There are also cairns, situated in all cases upon the tops of the highest headlands. They are conical in form, and consist of stones, none of which are larger than a man could easily handle. These are thrown together promiscuously. The cairns never contain more than one skeleton, and are destitute of any of the paraphernalia of burials of that period; no arrow or spear points, no axes, no ornaments, not even a pipe, to console the occupant on his last journey.

Mr. Hempstead considers that an immense population once occupied this locality; that they were good cultivators of the land, were acquainted with geometrical forms, and were more civilized than any prehistoric race yet discovered.

The following note by Professor Busk on the photographs of skulls exhibited was also read.

"The photographs show that the skulls belonged most probably, at any rate one of them, to a brachycephalic race, and the contours correspond very closely with those of the brachycephalic type of Red Indians of which the Chinooks, Flat Heads, ancient Peruvians, and many other of the Indian races, afford such well-known examples. The other photograph appears to belong to a different type, and is probably dolichocephalic.

"Its chief peculiarity is the great occipital development. The forehead is not reclined, as in the other figure, and is tolerably well developed. The face, however, would seem to indicate a somewhat savage type, *i.e.*, one in which the facial region is largely developed; and the opening of the nares would seem to indicate a broad coarse nose. On the whole, there can be little doubt that this man belonged to an Indian race, and with regard to the form of the cranium, it should be remembered that many more or less dolichocephalic races of Indians exist or have existed in the interior of the continent, though not, I believe, near the sea-board.

"The Mandans, now, I imagine, extinct, belonged, if I remember rightly, to this form, and a similar conformation, according to Mr. Wilson, is still found in Canada, &c.

"So far, therefore, as we can at all judge from such scanty evidence as that of the present photographs, it would seem not improbable that the same two forms of crania co-existed among the mound builders."

DISCUSSION.

Mr. F. A. ALLEN said that he had alluded to the antiquities in the Mississippi and Ohio valleys in a paper which he contributed to the Congrès International des Américanistes held at Nancy in 1876.

The vast antiquities of the Mississippi valley might, he thought, be referred to a colony of the Brown Indians or Toltecs, who, in pre-Aztec times had occupied Mexico as far as the Colorado cañon, and passed through Texas into the Mississippi valley, thence ranging as far north as Lake Superior. He thought all the earthworks, embankments, mounds, &c., might be illustrated by reference to the colonies and *pueblos*, or communal houses of the Pueblo Indians, now rapidly dying out in Arizona and New Mexico, these Indians being probably the successors and imitators

of a more civilized race. In these *pueblos* we find large terraces, irrigated artificially, systems of defensive walls (like those of Inscala, China, &c.), watch-towers, temple mounds, and relics of sun-worship.

The Indians of Kentucky record traditionally the conquest of this superior race by their ancestors, and some details of the conflict. The Indians of Florida and Georgia had temples and palaces on high artificial mounds at the time of the conquest, and some of the others were probably "totems" or tribal-crests, and burial-mounds, analogous to the "huacas" of Peru.

Mr. HOLT, in reply, said he thought Mr. Hempstead was right in supposing that the structure known as the "Old Fort" was a place for the capture or detention of large animals.

He could not agree with Mr. Hyde Clarke, in believing that these cairns were the burial places of heroes. The great men of this people seem to have been buried in mounds, and, as usual, with the arms, ornaments, and articles supposed to be of use to them in their long journey; while in the cairns the interments were made without any such mark of respect.

Dr. Rae exhibited an Eskimo lamp, and explained its use.

MAY 8TH, 1877.

JOHN EVANS, ESQ., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same, and a special vote of thanks to the Vienna Government, and also to Dr. Karl de Scherzer for a complete set of volumes relating to the voyage of the "Novara":—

FOR THE LIBRARY.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XXI, Nos. 89, 90.

From the ACADEMY.—Proceedings of the Davenport Academy of Natural Science. Vol. I.

From the INSTITUTION.—Annual Report Smithsonian Institution, 1875; Smithsonian Contributions to Knowledge. Nos. 259 and 287.

From Professor F. V. HAYDEN.—The Grotto Geyser of the Yellowstone National Park.

- From the SOCIETY.—Verhandlungen des Naturhistorisch-Medicinischen Vereins zu Heidelberg. Vol. I, No. 1.
- From the ACADEMY.—Bulletin de l'Académie Royale de Copenhagen. No. 2, 1876.
- From the AUTHORS.—Caractéristique physique de la population de la Galacie. By Dr. J. Majera and Dr. I. Kopernicki; Des préjugés médicaux et des croyances superstitieuses du peuple en Pologne; Le congrès d'Archéologie et d'Anthropologie préhistoriques à Buda-Pesth. By Dr. I. Kopernicki.
- From the Berlin Anthropological SOCIETY.—Zeitschrift für Ethnologie. No. VI, 1876.
- From the Austrian Government.—Voyage of the "Novara." Anthropologischer Theil 1, 2, und 3; Zoologischer Theil 1. Bd. 1 und 2, Abth., A. B., Text und Atlas; Botanischer Theil, Bd. I.; Linguist. Theil 1867; Geologischer Theil 1 und 2, Bd., Statistisch Commerçiller Theil 1 und 2; Nautisch Physicalischer Theil 1, 2 und 3; Medizinischer Theil 1, Bd.
- From the EDITOR.—Matériaux pour l'Histoire de l'Homme, March, 1877.
- From the SOCIETY.—Proceedings of the American Philosophical Society. Vol. XV, No. 96; XVI, 98.
- From A. H. LEWIS, Esq.—Chart of West Africa.
- From the EDITOR.—Nature, to date.
- From the EDITOR.—Revue Scientifique. Nos. 44 and 45. 1877.

Mr. Martin exhibited objects from a large refuse heap in the neighbourhood of Smyrna, and made the following remarks thereon :—

On the 20th May, 1876, I visited Smyrna, and spent part of the few hours I was in that city in inspecting, at Mr. Hyde Clarke's suggestion, the supposed kitchen-midden. It is situated about a third of the way up the hill towards the castle. The hill is of hard rock, barely covered with soil, which rock is extensively employed for building purposes. The road is principally used by men quarrying the stone, and has exposed a large section of the heap. I had no means of measuring it accurately, but it is certainly several hundred feet long, and from 8 to 12 feet thick.

In it I found bones, pieces of pottery, and layers of oyster and other shells, the oysters were remarkably massed together. Here and there were layers of charcoal, but I could find no trace of flints or of flint implements.

The whole of the country at the back of the city is archæologically unexplored, and any light that can be thrown on the early history of Asia Minor is valuable.

I may mention that being *above* the city and *up* the hill, the heap cannot be the refuse of the city of historic times, which appears always to have occupied its present position, and it would not have been possible that the thrown-out rubbish would be put up hill and

not down, and we have no record of any city earlier than the one now existing, which has had a continuous life from the earliest historic times.

Mr. Hyde Clarke, whose long acquaintance with the country makes him familiar with this place, will give you far more information than I am able to do, and I may conclude by saying that all the fragments I have placed on the table were found *in situ*, and none picked up from the surface.

MR. HYDE CLARKE: The remains which Mr. Martin describes were on Mount Pagus, the Castle Hill, at Smyrna. What they are I do not profess to know, and I can account for them on no hypothesis. They have been observed by travellers, and have been described as a geological formation, with beds of fossil oyster shells. My specimens are unfortunately lost, as are my notes, which I suppose I communicated to Mr. Murray. My attention was only called to this place during the latter time of my stay in Asia Minor. Speaking from memory, the deposits extend about 600 feet in length, and are in one place perhaps 100 feet broad. The essential peculiarity is the three thin layers of oyster shells, lying perfectly parallel for long distances. It is impossible to account for them by the supposition of the oysters being eaten *in situ*, or the shells being flattened by compression. With regard to the pottery, it is not easy to define the age, and it cannot be treated as Roman, because such pottery was made for ages in Asia. Samian ware is so called from the neighbouring island of Samos, where were found the clay beds in my time, and Samian and other pottery-making was learned by the Romans from the Greeks and Asiatics, and not by the Asiatics from the Romans. It would very naturally be supposed that the rubbish was thrown over the walls, or carted outside of the walls; but then comes the question why were the oyster shells so carefully arranged? It may be mentioned that in Wood's "Ephesus," a layer of oyster shells on a foundation is described. The date of the deposit must be Byzantine, or very ancient, possibly præ-hellenic, as the city of Smyrna has in most periods, as now, been on the sea-shore, and the Mount Pagus enclosure has only been occupied at the two epochs referred to. It is most desirable this place should be examined by visitors to Smyrna, as also the better-known monuments of the tomb of Tantalus opposite, described by Texier, the Niobe, and Mount Sipylus, the pseudo-Sesostris at Ninfi (Nymphæ), and its lately discovered companion; the site near Smyrna of the colossal head, brought to the British Museum by Mr. Dennis, and the remains behind Boujah. I long since pointed out Smyrna as a præ-hellenic region, and then I connected it with what I now call the Sumerian or Khita-Peruvian epoch. The discoveries of Dr. Schliemann render it most desirable consequently to have a re-examination of the Smyrna district under another aspect, because it has been hitherto regarded as simply Greek. The name of Smyrna is most remarkable, and none the less that Samorna was a name given to an ancient quarter of Ephesus. It is undoubtedly a Sumerian name. Sipylus is remarkable as possibly taking its name from

Suburu, Accad. a sculpture, referring possibly to the Niobe. Nymphæ is another notable name. To these must be added the neighbouring Ephesus, Samorna, Pygela, Mæander (Mdinare, Georgian, river), and a host of others. Smyrna and Ephesus were Amazon cities. Smyrna is the place most accessible from England where monuments of the proto-historic epoch, probably Khita-Lydian, can most readily be seen.

Col. LANE FOX: The pottery exhibited by Mr. Martin has all the characters of Roman workmanship; the piece of the handle of a jug, &c., the lip of a bowl especially so, the small fragment of red Samian certainly so; none of the fragments at all resemble pottery belonging to the archaic period of Greece. The observation made by Mr. Hyde Clarke as to the layers of shells being stratified more or less, seems to me not at all improbable in the view of the mass being a refuse heap or a kitchen-midden. I have cut out several kitchen-middens at different times, and have usually found such deposits to present a stratified appearance. Shells or other refuse of a particular kind are often shot down in quantities at a time, then other rubbish comes upon the top, and the weight of the superincumbent mass presses the various deposits down into seams as if laid by water.

The PRÆSIDENT, judging from the presence of so-called Samian ware among the pottery, the shape of some of the fragments, and the character of some wall-plaster, was inclined to regard the objects exhibited as of Roman date. He thought that the deposit was rather of the nature of a rubbish heap, such as frequently found in the neighbourhood of Roman sites, than of a kjökking-mödding properly so-called.

Mr. A. L. Lewis read a Note on a Rude Stone Monument in Kent, of which the following is an abstract.

On a RUDE STONE MONUMENT in KENT. By
A. L. LEWIS, M.A.I.

It may be doubted whether, out of every 10,000 visitors to Kit's Coty House and the fallen dolmen called the "Numbers," 100 visit the stones in Addington Park (some 7 miles off), which are figured by Camden as two circles, but which were more probably dolmens, one of which had an avenue at least 180 feet long, running in a south-westerly direction from it, and both which have been more fully described by me in "Anthropologia" (p. 511 *et seq.*).

If, however, 100 visitors out of 10,000 go as far as Addington, not more than 1 out of that 100 goes to or even hears of a yet more curious collection of stones at Colderham or Coldrum Lodge, which is about 2 miles from Addington, and one and a-half from Snodland Station.

Here, on the summit of a steep slope, some 20 feet or more above a private roadway belonging to the farm, lie thirteen stones of a medium size, almost touching each other, which may have formed the north-western half of an oval; and about 15 feet from which to the north-east lie three stones, which, if any of them are in their original positions, follow the rule for outlying stones which I have so often shown in previous papers to exist in our English circles. About 12 feet from the spot where the south-eastern half of the oval (if oval it were) would have stood, are the remains of what was no doubt a sepulchral chamber. Two stones, 9 to 10 feet long, 5 to 7 feet high, and $1\frac{1}{2}$ to 2 feet thick, stand about 5 feet apart, forming the sides of the chamber, and parts of the stones which formed the end nearest the oval also remain, but the other end projects over a small precipice about 10 feet deep, caused by the slope before-mentioned having been dug away or having slipped; and at the bottom of this precipice are scattered about ten stones of various sizes, which have no doubt fallen or been thrown down from above, where they probably formed part of the chamber or of the oval, which seem to have been two distinct erections.

While speaking of the Kentish monuments, I may mention that the proprietor of a small domain about a mile from Seven-oaks Station has thought fit to adorn it, at great expense, with (*inter alia*) a great number of large blocks of granite, arranged in circles and otherwise. At the present time there is no danger of these being mistaken for ancient monuments, but in the course of years they may become less readily distinguishable from the genuine articles, and in that case some speculation may be aroused by the unusual manner in which they are arranged; and the presence of a classic pillar amongst them may even be brought forward as evidence in support of Dr. Fergusson's theories. I think it may, therefore, be worth while to put on record the true origin of these spurious imitations, the construction of which is, in my opinion, as much to be regretted as is the occasional removal of original monuments from the place where they were erected to some other, for the gratification of the fancies of those who have unfortunately become their proprietors.

DISCUSSION.

MR. HYDE CLARKE said that the name Colderham suggested the association of Cold Harbour. The application of Cold in Cold Harbour, and in such names of Germanic places, remained undetermined. He had greatly extended the copious list begun by Mr. Hartshorne, and had added other members to the series. So far as

he had seen, a Cold Harbour, or a "Cold" site, was commonly near a Roman road or site: but looking to our present knowledge, he thought there was ground for further investigations. Harbour, in most cases, signified military station or camp. "Cold" was a distinctive term applied by our forefathers to the harbour and other sites. The suggestion he would make to pre-historic and archaeological inquirers was this: Is the term cold to be found, as in Mr. Lewis's case, in the neighbourhood of a pre-historic monument, and if so, did our forefathers distinguish between a Roman camp, or station, which was a Chester, and the abandoned pre-historic camps, or stations. Although he had stated now and previously that Cold Harbours were situated near Roman roads and sites; yet these would in many cases represent pre-historic or Sumerian sites, for just as the Roman civilisation was destroyed by the English invaders; so was the previous civilisation of Sumerian epoch destroyed by the Celts in Britain and Ireland.

Mr. Lewis said, in reply, that the name Colderham was also, and perhaps more frequently, spelt Coldrum. The greatest objection to viewing the stones in their present position, as forming part of the original plan of one monument of any form whatever, was that while those which he had called the oval and the sepulchral chamber were on a level plateau, and probably *in situ*, the remainder were at the foot of a steep slope 20 feet deep, down which they had probably fallen or been thrown.

Dr. John Rae then read the following paper:—

ESKIMO SKULLS.

I HAD the privilege of attending the series of admirable lectures so ably given by Professor Flower at the Royal College of Surgeons a few weeks ago, on the "Comparative Anatomy of Man," from which I derived much useful information, and on one point, very considerable food for thought.

I allude to the wonderful difference in form exhibited between the skulls of the Eskimos from the neighbourhood of Behring Strait, and of those inhabiting Greenland, the latter being extremely dolichocephalic, whilst the former are the very opposite—brachycephalic; the natives of the intermediate coast, from the Coppermine River eastward, having mesocephalic heads.

Why this difference? and which is the true Eskimo type?

We have no knowledge, as far as I am aware, of the Eskimos using any means in the form of bandages or otherwise, to change the shape of the skull; indeed, the heads of the Eskimo children, whenever I have seen them, have been left singularly free in

infancy from pressure of any kind, less so than most little ones, their usual cradle being the hood of the mother's coat.

It is well known that the Western Eskimo, by which I mean those near Behring Strait—are now and have been for a very long period of time, on terms, if not of friendship, at least of acquaintanceship sufficiently intimate with the Indians to visit and barter with each other, and there is said to be evidence of mixture of the races. If this is true, it may have aided in producing the form of head found among these Eskimos; the head of the American red man being brachycephalic.

We know that for at least a hundred years, and it may be for a much longer period, the Eskimos frequenting the American coast from the Coppermine River eastward to Hudson's Bay, have been at constant and deadly feud with the Indians, and that no friendly relations of any kind has taken place between them until very lately. There is, however, a tradition among the Indians near the Coppermine, that the Eskimos on one occasion carried off a young girl of their tribe. This may be true, for there is one family of Eskimos in that locality which struck both Thomas Simpson and myself as having something unusual in their appearance, being taller than, and having features different from those of their neighbours. This, however, was the only case of the kind we noticed.

But how do the Eskimos of Greenland get their long heads? If the ancient colonists who went from Iceland to Greenland many hundred years ago, and who were believed to have been all destroyed by the Sknelings (Eskimos), were dolichocephalic, the question might perhaps be answered; for it is by no means improbable that these lost people may have had Eskimos as domestics, or may have taken their women as wives, in the same manner as is done at the present day by the Danes, whose blood is now so largely mingled with that of the natives there. The Sknelings also when they destroyed the settlements may have carried away some of the women and children as captives, a common occurrence in all (especially savage) warfare.

If there is any foundation in fact for the theory I have suggested, the pure type of Eskimo is to be found among those inhabiting the coast from the Coppermine River, eastward to the shores of Hudson's Bay, who are said to have heads intermediate in form between those on the extreme west and the natives of Greenland.

DISCUSSION.

Mr. HARRISON: Is the deformation artificial?

Dr. RAE: No, as far as I am aware. The head of the Eskimos child is never tied up like that of the Indian of America.

Mr. CLARKE: Has Dr. Rae observed difference between half-blood and true Eskimos?

Mr. EVANS: Might not the carrying in the hood produce the ridge shape?

Dr. RAE: I can only give ideas, as I have no measurements. I take a fact for showing perpetuity of type in them by the Fair Isle people, who are said to resemble the Basques, in consequence of a mixture of blood when one of the Spanish Armada was wrecked on that island. They still dye with native dyes and manufacture woollen in the same manner as the Basques are said to do. I believe the Greenlanders came from the west. They could only get it (the form of head) by crossing. The hood-carrying of children applies to all Eskimos, as far as I know, and would likely affect all alike.

Col. LANE FOX: Do they differ in stature or colour?

Dr. RAE: Not greatly. They are not a small people, their legs being comparatively short make them appear so.

Some discussion followed on the change of physical form in America and Australia.

Dr. BEDDOE: It is possible that there was an admixture of Norse blood in the Eskimo of Greenland, prior to the Danish settlement there. The Eskimo traditions lately published by Dr. Rink, in his recent work on "Danish Greenland," supply additional and more direct evidence in favour of this view, not by any direct statement as to intermarriage, but by the kind of intercourse which they seem to imply as existing between the Norsemen and Skrallings. The long roof-shaped skull of the Eastern Eskimo, could hardly however have resulted from an Icelandic cross. There are two types in Norway, round-headed and long-headed respectively, the longer heads abounding near the coast, and belonging to the ruling and colonising race. One would expect the Icelanders to belong chiefly to this long-headed type, and some measurements of Dr. Hjaltalin, taken for me, rather bear out this view; but Captain Burton speaks of them positively as broad-headed. Certainly they would not be so long-headed as to account for the Greenland form of head.

Col. LANE FOX: The fact introduced to our notice by Dr. Rae, that the skulls of the western Eskimo are brachicephalic; those of Greenland and Labrador, dolichocephalic, and those of the intermediate tribes of transitional form between the two, is, so far as I know, new to Anthropology it is at least new to me, and if founded on sufficient observation, appears to me very important; I concur with Dr. Beddoe in thinking it hardly possible the mixture of Norwegian blood in the East could have been sufficient to produce so marked a change. All observation and tradition seems to point to the West as the source of the Eskimo migration; and it would be curious if it turned out that in America as in Europe, a brachycephalic people followed and pressed outwards a smaller dolichocephalic race. I should be glad if Dr. Rae could tell us whether

there is any difference in the stature or colour of the Eastern and Western Eskimo.

Mr. LEWIS would ask Dr. Beddoe whether the broad-headed people of Norway, to whose Lappaffinities he had alluded, were not of a much greater stature than the Lapps? Dr. Simms, of New York, a very intelligent observer, considered the mixture of Red Indian blood in the United States to be much greater, both in amount and influence, than was generally supposed.

Dr. BEDDOE: Not conspicuously. I judge from physiognomy that the round-heads are darker, and are partly of Lappish or Finnish descent. As to stature I cannot speak.

Dr. RAE, in reply, said: Never having myself taken measurements of Eskimo skulls, I am wholly dependent upon, and take my facts from, skulls shown and most ably described by Professor Flower at the Museum of the Royal College of Surgeons, believing such information to be the most trustworthy that could be obtained. This very short paper does not profess to discuss the subject of which it treats, its chief if not its only object being to draw attention to what appears to the writer to be an interesting question in ethnology.

Dr. BEDDOE then read the following paper:—

On the ABORIGINES of CENTRAL QUEENSLAND.

By Dr. BEDDOE, F.R.S.

THE subject of the brief paper I am about to read, is not one with which I have any personal acquaintance: I have merely put together some of the materials which have been imparted to me by Mr. Robert Christison, who holds a large tract of land near the head-waters of the Thomson and Landsborough Rivers, stocked chiefly with sheep, but partly with cattle and horses, and who has been settled in that part of the colony about thirteen years. I think it probable that there is no man in Queensland (unless it be a few who are officially connected with the aborigines) who has had so much to do with these people in what may be called their wild state.

It is important therefore to state that in Mr. Christison's opinion, the current estimate of the moral, if not also of the intellectual status of these people, is very much too low. The aborigines of Queensland, and indeed of all Australia, are stigmatised as irreclaimable, and incapable of gratitude, affection or attachment to their white masters or neighbours; as thievish and bloodthirsty, and thus dangerous to the property and lives of the whites: as incapable of anything like steady, honest,

continuous work, and therefore useless to the settlers; and finally, as very sparingly endowed even with those social virtues whose objects are limited to their own people, such as conjugal and parental affection.

Mr. Christison's experience traverses every point of this indictment more or less completely.

Within a few years of his settlement on the lands he occupies, where he was the earliest European invader, he succeeded in establishing friendly relations with a tribe who had dwelt there, called Dalleyburra, and numbering about 300 in all; and by a judicious mixture of firmness, justice and kindness, established himself as their ruler. Considerable numbers of them have been employed since then, in tending herds, sheep and cattle, in sheep-washing, bark-stripping, timber-cutting, and various other occupations.

Women and children have been employed as well as men; and, as might perhaps have been expected, the women are at least as useful as the men for hard or continuous work, such as attending sheep in the lambing season, and the like. Considerable alterations in their other habits have of course taken place, more or less directly connected with the acquisition of new habits and methods of labour. One of these is that of course they have learned to smoke and enjoy tobacco, and have thus established a new artificial want, which, as it links them on to the European dispenser of this luxury, is useful as supplying a motive to labour, and may conceivably be morally beneficial. The use of alcohol remains happily unknown. European clothing is adopted to some extent; shirts and blankets at all events are highly appreciated; and the cleanliness of the natives employed about the station is said to be decidedly in advance of that of the lower class of Europeans.*

Sheep-stealing occurred, and caused some trouble, in the early days; cases of this kind were always carefully investigated and punished; and nothing of the kind has now happened for several years.

Conjugal and parental affection appear to be strongly developed in both sexes. Quarrels of course occur, and occasionally the husband may chastise the wife; but this is not common, and the tie between them is in the main one of

* It is noteworthy that they are rapidly dropping the use of their own language as they acquire the English, or a form of English; and that their own communications with each other are largely carried on in the new tongue. The same is the case with imported Polynesian labourers. When we know that the number of Englishmen employed on Mr. Christison's stations has always been very small, the work having been almost entirely performed by natives or by Polynesians, we must recognise in this rapid change of language a very remarkable fact.

affection. Instances have happened in which a father or mother has sold a boy to a travelling squatter or other European; but inasmuch as the property supposed to be alienated invariably re-transfers himself, according to a previous arrangement, in the course of a day or two, such transactions are evidence of what Uncle Sam would call smart dealing, and not of want of parental feeling.

When kindly, justly, but firmly treated, individuals become strongly attached to their white master. When accompanying him on exploring expeditions, they have been known, provisions running short, to refuse their scanty rations for successive days, rather than suffer their master to want. It is noteworthy, considering the nature of the country and climate, that in Mr. Christison's opinion the so-called blacks are less able to bear thirst and the deprivation of water than white men, though they can go longer without solid food.

Many of the men are of good stature, some perhaps 6 feet high, with good muscular development, even of the legs, but no fat. They are like a well-known personage, not nearly so black as they are painted: the deep colour being in a great measure due to the constant use of an unguent of powdered charcoal and snake-fat, or iguana-fat, not with a view to adornment, but to comfort, as it prevents the cracking of the tender skin in their hot and dry climate. Snake-fat is highly valued, and much of it is husbanded for this purpose, though from the scarcity of fat in most kinds of food attainable, it is also esteemed a great culinary luxury. In fact, snakes furnish a great portion of their food; all kinds are eaten, venomous and harmless; but the blackman always carefully smashes the head to pulp with a stone. In the treatment of snake bites he shows a knowledge and skill hardly to be expected. Thus, a bite having been received near the ankle, he ties a ligature round the limb, and then scarifies it deeply in a circle above the wound.

I have already mentioned that the Australians cannot long endure thirst. The fact that numbers of them have been found in districts where Europeans perished, or ran the risk of perishing, for lack of water, is to be accounted for solely by their minute and accurate acquaintance with the signs of the presence of water, which enables them to discover it where white men fail to do so. They are knowing as to the qualities of water, and are aware of the risk of drinking cold water too hastily in large quantities.

Their spears, tomahawks, waddies and other weapons much resemble those used in other parts of Australia. Their boomerangs, in the use of which they have a skill quite unattainable by a white man, are small, and have a smaller curve than some

brought from South Australia. The same curious quadripartite division of the tribe exists here as elsewhere in Australia, with the recognized object of preventing in-and-in breeding.

DISCUSSION.

MR. EVANS : Is it the fact that these people are lighter than the South Australian blacks ?

MR. CHRISTISON : Yes, I think so.

MR. HARRISON : Are the infants fair ?

MR. CHRISTISON : Yes, almost white.

DR. BEDDOE : But the hair is always black ?

MR. CHRISTISON : Yes, always black and curly.

DR. BEDDOE : They talk English to each other ?

MR. CHRISTISON : Yes, the young people do, and even the old ones sometimes.

DR. RAE : Are they great eaters ?

MR. CHRISTISON : Only at first ; but when they have become used to rations and regular meals, including bread or damper, they are very moderate eaters, perhaps more moderate than Europeans.

Col. LANE FOX having taken the chair, said : He felt sure the meeting would wish to return their thanks to Dr. Beddoe for his interesting communication, as well as to Mr. Christison for the information upon which the paper had been based. In a country where the arts of the aborigines are so generally uniform as Australia, minute differences, such as a resident only is likely to notice, are of great interest ; by such observations, we shall in time be able to map out all variations that have taken place in the different parts of the continent, and perhaps trace them to their sources. The remark that natives suffer more from thirst than Europeans, is singular and unexpected ; one would imagine, that in a country where such great scarcity of water exists, natural selection would have produced a race capable of great endurance in this respect, but the reverse appears actually to be the case.

MR. LEWIS remarked that the skins of the natives of Queensland seemed to be much lighter than those in South Australia, judging from the photograph of the former then exhibited, as compared with photographs of the latter in his possession.

The meeting then separated.

MAY 22ND, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

FRANCIS A. ALLEN, Esq., of Clapham, and THOMAS PALMER, Esq., of Chislehurst, were elected members.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same :—

FOR THE LIBRARY.

From the AUTHOR.—The Physical Requirements of Factory Children. By Charles Roberts, F.R.C.S.

From the AUTHOR.—Historique de l'Anthropologie. By Dr. Paul Topinard.

From the SOCIETY.—Proceedings of the Royal Society of Tasmania for 1875.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXVI, No. 179.

From the ACADEMY.—Atti della R. Accademia dei Lincei. Vol. I, No. 5.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. Vol. VI, No. 29.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris. Vol. XII, No. 1.

From the EDITOR.—Revue Scientifique. Nos. 46 and 47, 1877.

From the EDITOR.—Nature, to date.

The President addressed the meeting on the present state of the Question of the Antiquity of Man.

WE are met this evening for the purpose, not so much of reading papers before this Institute, as for a conference on the present state of the question of the antiquity of man. The state of that question is very different now from what it was in the year 1859, when the late Dr. Falconer, Mr. Prestwich and myself first brought it forward before the British public.

It is now no longer difficult to get evidence accepted as to the antiquity of man. The danger rather lies in the other direction, and we are liable to have evidence brought forward relating to discoveries bearing upon the subject which is hardly trustworthy. In all questions of this kind extreme caution is necessary. We may in the course of the discussion this evening hear something with regard to the development of language and civilisation, and the time necessary for producing those results which we find to have been attained in the earliest historical periods; but after

all, our chief points of discussion and the proofs of the antiquity of man will principally lie within the domain of the archæologist, the anthropologist and the geologist. No one of those it appears to me is sufficient by himself to offer a very strong opinion on any given discovery unless he possesses the somewhat rare combination of the acquirements of all. The archæologist, for instance, may determine an object as being a work of human art, or the anthropologist may say that a certain bone belongs to the human frame, but unless the geologist is satisfied as to the nature of the deposits in which the object was found, there is an end to the question. In the same manner the geologist may testify to the antiquity of deposits, but if the archæologist pronounces the stone found in them to be merely a product of nature, or the anthropologist determines the bone exhumed from them to belong to some other mammal than man, again the question drops. The question, however, whether certain beds are pre-glacial, inter-glacial, or post-glacial, lies entirely within the province of the geologist, and we may hope to hear something definite with regard to at least one disputed case from the eminent geologists who have favoured us this evening with their company. Besides observations as to the objects, above all things care and caution must be observed with regard to the facts of the discoveries themselves, for there lies what appears to me to be a very possible and indeed fertile source of error; for human bones, or humanly-worked implements may belong to far more recent periods than the deposits in which they are found, and in which they might have been buried. Objects from the surface are also liable to get mixed with those from lower beds, and we cannot always trust to the observations of ordinary workmen. This source of error should more especially be guarded against in the case of cave deposits, in which may be found interments of a later date than the flint or bone instruments in the surrounding soil. I am not at present going to enter into any question or arguments as to facts. After these papers have been read, the whole subject will be open to discussion, and if at the close of the discussion I can offer any remarks of service in unravelling the question, I shall be happy to do so. I may, however, even now allude to discoveries in other countries of similar character to those made in England. I may for instance cite the discovery of the Abbé Bourgeois at Thenay near Pontlevoy, of implements to which he attributes a miocene age. There are also discoveries by Capellini in the neighbourhood of Sienna, of bones of a whale which he regards as having been cut by the hand of man. In this case there is a question as to whether the objects found are of pliocene age or of more recent date. There is also the discovery of the human

skull, "the Crano dell' Olmo," in a bed regarded as pliocene; but there appears to me to be a doubt as to the position of the skull, and, moreover, there appears to have been found with it a very fine flint lance-head which is probably neolithic. Then again, there is that interesting discovery at Wetzikon, in the neighbourhood of the lake of Zurich, described by Professors Rüttimeyer and Schwendener. In this instance what are regarded as cut staves of wood, and others with shavings twisted round them, have been found in lignite presumably belonging to an interglacial period in Switzerland. Then again there are the quartzite implements which have been discovered in the lateritic deposits of Madras.

In these discoveries the whole question turns upon the geological age of the deposits, and all are fair elements in the case to be brought forward this evening. There is but little doubt that inasmuch as the human race had, in a climate such as that of Britain in quaternary times, been able to subsist, to fabricate such implements as we now find, and even to have attained no moderate skill in the art of sculpture, they may have been colonists or wanderers from the original stock whose home was under a more favoured clime.

There is little doubt also, that of these earlier members of the human race, remains will eventually be found. In the meantime each successive discovery or even presumed discovery must be received in a cautious, thought candid spirit, even if eventually we have to carry it to what is called in the City a "suspense account;" but looking to the many sources of doubt and error which attach to isolated discoveries, I cannot but think that our watchword must for the present be "caution, caution, caution."

The following papers were then read by the authors:—

On the EVIDENCE AFFORDED BY THE CAVES OF GREAT BRITAIN AS TO THE ANTIQUITY OF MAN. By Professor BOYD DAWKINS, M.A., F.R.S. F.G.S., F.S.A.

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VIII.—Relation of Pleistocene Species to Glacial Age.

IX.—Arctic and Temperate Species both Pre- and Post-Glacial.

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XIV.—Glacial Phenomena no guide to Age in Non-Glaciated Districts.

XV.—Palæolithic Man of Caves of Late Pleistocene Age, Post-Glacial, and possibly Pre-Glacial as well as Glacial.

I. INTRODUCTION.

It falls to my lot this evening to open the discussion on the antiquity of man, by bringing forward the evidence offered by the discoveries in pleistocene caves in Britain. It has been recently argued that all palæolithic deposits both in caves and river-beds are of pre- and inter-glacial age, or in other words, date back to an antiquity vastly more remote than that post-glacial period to which they have been referred by Lyell, Prestwich, Evans, and others.

The argument is based on the mammalia, their distribution, and on those conditions of life which are said to be inconsistent with those of post-glacial times. This I propose to examine so far as relates to the cave-fauna, leaving that of the river-beds, and which may be dealt with by physical evidence, in far abler hands.

Before, however, dealing with the subject, I would say that the antiquity of man is one which is not to be measured by the system of chronology used by the historian, but by the sequence of those physical and biological changes which are so familiar to the geologist.

Beyond the historical record, past time can not be estimated in terms of years, because we do not know the length either of the interval separating any two events, or of the time necessary for the changes which mark the hour—to use a metaphor—on the geological dial.

II. NATURE OF EVIDENCE. THE CAVES OF CRESWELL.

The nature of the evidence offered by the bone-caves may be best estimated by taking a particular case. I shall, therefore, take as a type of palæolithic caves in Great Britain, those of Creswell Crags, which have recently been brought before the Geological Society by the Rev. J. M. Mello and myself, not

merely because they were the last explored, but because, in many respects, they offer evidence of singular value.

The well-wooded crags of Creswell rise on either side of a small lake, and are penetrated by a series of horizontal caves, two of which, the Robin Hood and the Church Hole, furnished palæolithic implements, in strata which were arranged in the same order in both. On the rocky floor a layer of light coloured sand, without fossils, the result of the decomposition of the rock below, formed the base of the lower ossiferous strata, which consisted of red sand and clay, averaging about 3 feet in thickness, and containing numerous stones and fragments of fossil bones and teeth. These were all scored and marked by teeth, in such a manner as leaves no doubt that the animals had fallen a prey to hyænas, and been dragged off to be eaten piecemeal in their dens. They were scattered irregularly through the sand and clay, which was the result of the flooding of the caves from time to time, when the stream flowed past their entrances at a slightly lower level, instead of some 20 feet below, as the present stream would do were it not formed into an artificial lake. They belong to the following animals :—

Lion.
Spotted Hyæna.
Fox.
Wolf.
Bear.
Reindeer.

Irish Elk.
Bison.
Horse.
Rhinoceros.
Mammoth.
Hare.

To this list must be added Man, who left behind him a few rounded quartzite pebbles and flakes of quartzite, of the rudest and roughest sort. The whole group points out that savages of a low order visited the district from time to time following the chase, that they drove out the normal inhabitants, the hyænas, which returned, however, to their dens after he went away. In this manner the intimate association of the implements and the fragments left by the hyænas, may be satisfactorily explained.

Above the red sand there was a fine red loam, the upper part of which was in some places represented by a limestone breccia. Throughout these numerous fragments of bone, some gnawed by hyænas, others broken and scratched by man, were associated with charcoal and burnt bone, and implements of quartzite, flint, and ironstone, of types well known in this country and on the continent. Some of those of quartzite and ironstone were of precisely the same form as those from the river-gravels of Brandon, Bedford, and Hoxne. They are identical with those found in France, from St. Acheul, near

Amiens, as far south as the district round Toulouse, and always in association with mammoth, reindeer, and woolly rhinoceros. Implements of flint were very numerous, flakes, scrapers, lance-heads like those of Solutré, awls or borers, and the like. There were also bone awls, a well-finished bone needle, variously cut and notched bones and cylindrical rods of antlers. And lastly, the incised figure of a horse, drawn with remarkable spirit upon a rounded and polished fragment of rib, of the same type as those found in the caves of France and Switzerland.

The animals associated with these remains are the following:—

Machairodus.	Reindeer.
Lion.	Irish Elk.
Wild Cat.	Bison.
Leopard.	Horse.
Spotted Hyæna.	Woolly Rhinoceros.
Fox.	Mammoth.
Wolf.	Hare.
Bear.	

Above the strata containing these remains was a layer of stalagmite ranging from 1 foot to a few inches in thickness.

From the distribution of the implements in these strata, it was evident that the human occupation consisted of three distinct stages. The few rude and rough implements in the red sand imply the use only of quartzite. During the time of the deposition of the lower part of the red loam, man used quartzite and flint, the latter of which, according to Mr. Binney, is to be met with within a distance of 40 miles. While the breccia and the upper cave earth were being accumulated the implements and weapons were fashioned out of flints, although quartzite was still used for hammer-stones. To this stage belong the figure of the horse, the most elaborately-worked flint implements, and the greater part, if not all, of the implements of bone and antler.

A sequence of palæolithic remains of this sort has not, so far as I know, been obtained from any other bone-cave either in this country or on the continent. To my mind at least it implies a distinct progress in the arts among the cave-dwellers, while the fauna above-mentioned remained on the whole without change. In Kent's Hole also, the implements found in the breccia at the bottom are of a ruder form than those which have been met with in the cave-earth above.

III. MIXED FAUNA UNIVERSAL IN BRITISH BONE CAVES.

In the list of mammalia given above, it will be observed that there is a mixture of species, some of which are extinct, such as

the mammoth, the woolly rhinoceros and Irish elk. Others are now living in temperate climates, such as the horse and bison; others in hot countries, such as the spotted hyæna and the lion; while one, the reindeer, which is very abundant, is now only living in the cold region of the north. This mixed fauna is one which is to be met with universally in the bone-caves of this country, and with one exception, that of Baume in the Jura, in those also of France, Germany, Switzerland and Belgium.

In some caves in this country, such as Kirkdale, Victoria and Raygill, in Yorkshire, and in those of Cefn near St. Asaph, and in those of the Mendip Hills, we find the hippopotamus associated with the remains of the above-mentioned species, while in others we meet with northern forms, such as the lemming, lagomys, arctic fox, and glutton, in like association. In the caves of Auvergne, Professor Lartet detected musk sheep along with the same forms, an arctic animal found in this country in the river strata along with the mixed fauna above-mentioned. The species composing this mixed fauna occur in the caves of Britain in the closest possible relation to each other. In none do we find the southern group of animals in one situation and the northern in another; but they are found mingled together either just as they were left by the hyænas or by palæolithic man, or as they were introduced by a stream, or by the falling in of animals into swallow holes, as the case may be.

On this point the experience of Buckland and Falconer is amply confirmed by my own. Nor is the reputed case of the Victoria Cave an exception, in which a southern fauna with hyæna, rhinoceros, and hippopotamus is stated by Mr. Tidde-man to be met with below the horizon of reindeer. While the exploration was under my charge, the reindeer was determined from the stratum in question, in 1872, and published in the British Association Report for that year, which apparently has been overlooked in the succeeding reports. It is not to be seen in the collection from the cave in the Giggleswick Grammar School. The same intimate association of northern and southern forms is observable in a large number of river-strata, as may be seen by my lists published in 1869 (*"Quarterly Journal Geological Society,"* p. 199).

IV. THIS MIXED FAUNA CANNOT BE ACCOUNTED FOR BY GLACIAL ÆONS.

How can we account for this remarkable association of animals? The question relates directly, as will be seen in the sequel, to the age of palæolithic man. Is it to be explained by the hypothesis of Messrs. James Geikie, Croll and others, that the southern

animals inhabited Britain in a warm inter-glacial period, while the northern forms were here at another time after an interval of 5,000 (Geikie, "Ice Age," 2nd edit., p. 523), or of 12,000 (Croll, "Climate, and Time") years, or a glacial æon; and that the strata containing their respective suites of remains have afterwards been mixed up together? This conclusion is negatived by the fact that there is not the least mineral difference to be observed between the remains of the southern and northern forms. Were it true, surely some one of the numerous British bone-caves would offer us some fragments of the undisturbed strata necessary to the hypothesis. When we are asked further to apply this explanation, not merely to the caves but to the river-strata, it seems to me that we are asked to believe more than we can reasonably be expected to believe without having some proof of the existence of the undisturbed strata in question with separate suites of animals. "De non apparentibus et non existentibus eadem est ratio." In the case of one animal, however, the spotted hyæna, the co-existence of which in Britain with the reindeer, is considered by Mr. James Geikie an impossibility (p. 512), we have full proof that northern and southern species lived in Britain at the same point of time. In twenty-eight out of thirty-one ossiferous caverns the two are found side by side, and in the great majority of these the gnawed bones and antlers of the reindeer show that that animal was the common food of the hyæna.

The fact that the southern and northern forms are associated together, not in one, but in all the British bone-caves, seems to me to be fatal to the view of migrations, at widely separated intervals of time, a view which is unsupported by any of the numerous discoveries in caves on the continent north of the Alps and Pyrenees.

V. MIXED FAUNAS MAY BE EXPLAINED BY THE SEASONAL-MIGRATION HYPOTHESIS.

The intimate association of northern and southern forms in the caves and in the great majority of river deposits, may reasonably be accounted for by the seasonal-migration hypothesis held by Lyell, and worked out in detail in my treatise on "Cave Hunting," by the overlapping of northern and southern faunas, according to the ever-varying summer heat and winter cold, over what was then a vast continent extending from Northern Africa to the hundred-fathom line off the coasts of Ireland and Scotland. In the summer the lion, Caffir cat, spotted hyæna, and hippopotamus would advance northwards; in the winter, the reindeer, musk sheep, lemming, tailless hare, glutton, and arctic fox would swing southwards.

If reference be made to my map of the distribution of pleistocene mammalia over Europe ("Quarterly Journal Geological Society," 1872, p. 436), it will be seen that Europe is divided into three zones; (1) that north of a line passing eastwards from Yorkshire in the direction of Hamburg, in which no southern forms are met with; (2) that south of the above line, and ranging as far as the Alps and Pyrenees, in which the faunas are mixed; (3) and lastly, that to the south of the above mountains, in which no northern forms occur. The middle zone then is the debatable ground between the northern and southern faunas, and every inch of it was probably contested not once but many times, according to the many and little-understood changes in the climate during the long period in which the pleistocene faunas had possession of Europe. The evidence seems to me to prove that the zoological provinces respectively of the reindeer and of the hyæna and hippopotamus were throughout this period contiguous, but that the position was continually shifting as the climate changed.

VI. PALÆOLITHIC MAN OF CAVES BELONGS TO NORTHERN GROUP OF ANIMALS.

With which of these faunas are we to associate the palæolithic man of the British caves, with the northern or the southern? The answer is no uncertain one. On the one hand, we find that the remains of the reindeer are found in every cave in this country, and on the continent north of the Alps and Pyrenees, in which palæolithic remains have been recorded. They are so abundant in those of central France, as to have given rise to the term, "the reindeer period." On the other hand, the only case on record of palæolithic implements being found in a cave, side by side with hippopotamus, is in that at Pont Newydd (Cefn), about 3 miles from St. Asaph. They are invariably associated with reindeer, and casually with the hippopotamus, *Elephas antiquus*, *Rhinoceros hemitæchus*, and the other southern species in the mixed fauna of the middle zone.

VII. PALÆOLITHIC MAN OF LATE PLEISTOCENE AGE.

At what time then in the pleistocene age did the reindeer invade the area under consideration?

The pleistocene fauna, as I have shown in another place, may be divided into three groups:—

1. The early pleistocene, represented mainly by the fauna of the forest-bed of Norfolk, and characterised by the presence of most of the temperate fauna of the cave and river-bed, of animals such as beaver, stag, roe, Irish elk. The *cervidæ* principally

belong to the tropical fauna of the *axis* and *rusa* types, which are survivals from the pliocene age. No northern mammalia are present.

2. The middle pleistocene, represented by the brick-earths of Erith, Crayford, Ilford, and Grays Thurrock in the lower Thames, and the deposit at Clacton. Deer of the *axis* and *rusa* type are absent; *Rhinoceros megarhinus* is present; *Elephas meridionalis* and *Rhinoceros etruscus* had retreated to the south. The stag, elk, roe, fallow-deer (*Var Cervus Browni*), bison and urus are among the more important of the even-toed ruminants.

3. The late pleistocene, characterised by the true arctic mammalia, the reindeer, musk sheep, and others being the chief inhabitants of the middle zone.

It is obvious that the palæolithic men of the caves belong to the least of these three divisions.

VIII. RELATIONS OF PLEISTOCENE SPECIES TO GLACIAL AGE.

The cause of these changes in the pleistocene fauna is to be sought in the lowering of temperature in the north, which culminated in the ice-sheet, or confluent glaciers of the glacial period. As the ice crept southwards it would push the animals southwards also. First the temperate group appeared among the pliocene survivals, and the arctic group was pushed as far as the Alps and Pyrenees and the shores of the Mediterranean. When the temperature rose, and the ice retreated to the north, or to the top of the higher mountains, the arctic group retreated also.

IX. ARCTIC AND TEMPERATE SPECIES, PRE- AND POST-GLACIAL.

On this view, the temperate and the arctic pleistocene species must have invaded Britain, fleeing before the advance of the ice, and following up its retreat; in other words, must have been pre- and post-glacial. Proof of this is offered on the one hand by the forest-bed fauna of Norfolk, and by the mammoths and reindeer found in the Scotch drifts, and on the other, by the animals found in the river-gravels, which are later than the boulder-clays of Bedfordshire and Essex, and which extend with scarcely a break through the non-glaciated areas of the continent to the southern limit of the middle zone.

X. SOME CAVES HAVE BEEN INHABITED BY MAN IN POST-GLACIAL TIMES.

It is obvious therefore that it is impossible to infer either the pre- or post-glacial age of man from a consideration of the

mammalia associated with palæolithic implements, apart from physical evidence in each particular case. Evidence of this kind is to be seen in the Pont Newydd Cave already alluded to, in which palæolithic implements are associated with remains of hyæna, bear, reindeer, *Rhinoceros hemitæchus* and *Elephas antiquus*. *dionalis* and *Rhinoceros Etruscus* had retreated to the South, &c.

The strata in which these are found are composed of materials derived from the sands and gravels of the middle drift, which underlies the upper boulder-clay of the surrounding districts, and occupies large tracts in Cheshire and Lancashire. This point is proved by the discovery of felstones in the lower strata, to which Professor Hughes called my attention last Easter.

It is therefore certain that here we have proof of the cave having been filled after the deposition of the "middle drift;" and since man and the animals found in it could not have inhabited the district while the upper boulder-clay was being accumulated upon it, we may conclude that they were in Denbighshire after the deposition of the upper boulder-clay, or in other words, that they are post-glacial.

XI. EVIDENCE OF THE VICTORIA CAVE AS TO RELATION OF MAN TO GLACIAL PERIOD UNSATISFACTORY.

The Victoria Cave adds nothing to the evidence or to the relation of palæolithic man to the glacial period, since the small fragment of fibula, what is taken by Mr. Tiddeman to prove that "the Cavern savage lived before the great-ice sheet, and before the great submergence," is considered by Professor Busk to be doubtful, and insufficient to be a basis for any such conclusion. I believe it to be ursine, on grounds which were recently brought before the Geological Society. Were it human, it may be remarked that the relation of the deposit in which it was found to the glacial age is a matter of dispute, on which opinions are about evenly balanced.

XII. SOME PALÆOLITHIC CAVES PROBABLY OLDER THAN POST-GLACIAL TIMES.

It does not however follow that because Pont Newydd Cave was probably inhabited by reindeer after the glacial period, that all palæolithic caves are post-glacial. While the ice crowned the higher hills of Wales and Northern Britain, caves and caverns further to the south, such as Kent's Hole and Brixham and those of the Mendip Hills, may have sheltered the palæolithic hunter. And even during the maximum development of the ice-

sheet over Northern Europe, man may have hunted, and probably did hunt, the reindeer in Aquitaine and Provence. There he may have been, to use the nomenclature of the glacialists, pre-inter- and post-glacial.

XIII. ALLEGED PROOF THAT PALÆOLITHIC MAN IS NOT POST-GLACIAL, FOUNDED ON SOUTHERN FORMS AND DISTRIBUTION OF SPECIES.

It remains now to examine the alleged proof that palæolithic man is not post-glacial, advanced by Mr. James Geikie.* The argument is founded on the assumption, first, that the hyæna, lion, and hippopotamus associated with him could not by any possibility have lived in the same area with the reindeer and other northern creatures, be the seasonal extremes what they may, and that therefore they lived here at a warm period, of which there is no evidence after the glacial age; and that therefore this period is pre-glacial, coincident with an interglacial æon.

"By slow degrees," he writes, "the cold of winter (glacial) abated, while the heat of summer increased. As the warmth of summer waxed the arctic mammalia gradually disappeared from our valleys, and sought out northern and more congenial homes. Step by step the climate continued to grow milder, and the difference between the seasons to be less distinctly marked, until eventually something like perpetual summer reigned in Britain. Then it was that the hippopotamus wallowed in our rivers, and the elephant crashed through our forests; then, too, the lion, the tiger, and hyæna became denizens of the English caves;"*

"Such scenes as these continued for a long time. But again the climate began to change. The summers were less genial, the winters more severe. Gradually the southern mammalia disappeared and were succeeded by arctic animals. Even these, however, as the temperature became more severe, migrated southward, until all life deserted Britain, and snow and ice were left in undisputed possession. Once more the confluent glaciers overflowed the land, and desolation and sterility were everywhere!"*

By a similar method as that by which the perpetual summer is inferred, by a judicious selection of animals from among the cave-fauna, a perpetual winter may be argued for the reindeer, musk-sheep, and the like, or a temperate climate from the

* "Ice Age;" 2nd edit., p. 562. The tiger has not yet been found in Europe.

stag, bison, horse, and most of the wild animals now living in Britain. And when we add further, the fact that palæolithic remains in the caves north of the Alps and Pyrenees, are invariably associated with the reindeer, and that that animal supplied the men of the caves with food and materials for implements, it will be seen that the perpetual summer hypothesis is untenable. I know of no facts, either physical or biological, in support of any warm climate in central and northern Europe since the disappearance of the deer of the types of *Axis* and *Rusa*, and the antelopes of the pleiocene.

The distribution also of the mammalia is urged in support of the view that palæolithic man is not of post-glacial age, and therefore either inter- or pre-glacial. There are certain areas in Britain in which the marks of recent glaciation are the freshest, and in which the fauna of the caves and river-beds is conspicuous by its absence. This is taken to prove that originally the animal remains were distributed alike over the mountains of Wales, Scotland and Cumberland, and the high grounds of the North generally, and that they have been removed from those areas by the extension of the ice. The view which I advanced in 1871 ("Popular Science Review" and "Cave Hunting," 1874) still seems to me a better explanation of the facts, that the non-glacial lowlands were inhabited by the animals, *while* the ice covered the glaciated areas, in the second ice, or glacier period.

XIV. GLACIAL PHENOMENA NO GUIDE TO AGE IN NON-GLACIAL DISTRICTS.

The physical changes of the glacial period are so little understood even in such a limited area as Britain, that they are a fertile subject for discussion among geologists. Even if they were thoroughly mastered, it seems to me that they would offer no means of testing the age of palæolithic man in non-glaciated areas, or those in which the majority of the ossiferous caves and river-strata are to be found. The glacial period further, is not a hard and fast line dividing one fauna from another. The classification by means of ice is one thing, and the classification by means of animals is quite a different thing.

XV. THE PALÆOLITHIC MAN OF CAVES OF LATE PLEISTOCENE AGE POST-GLACIAL, AND POSSIBLY OLDER.

In these remarks, I have approached the subject of the antiquity of man from the stand-point offered by zoology, and by the principles of homotaxy. According to the evidence of the associated mammalia, the palæolithic man of the caves belongs

to the late stage of the pleistocene, when the arctic animals were present in this country and on the continent in full force. He may have been in Europe before, and while the ice covered large tracts of land in this country, North Germany and Scandinavia, or in pre-glacial and glacial times, and he was an inhabitant of the Denbighshire caves after the ice of the second ice-period had passed away from that region.

On the EVIDENCE AFFORDED by the GRAVELS and BRICK-EARTH.
By PROF. T. McKENNY HUGHES, M.A.

PROF. HUGHES said: I will confine my remarks to the East Anglian district, in which it has been stated that evidence of the existence of man before the close of the glacial period has recently been found. I have no reason to doubt the finding of the implements in the beds from which they are said to have been procured. Their occurrence in the section near Brandon has long been known, and also in many similar deposits throughout East Anglia. The only point that is new, is the assertion that these beds are of glacial age.

The question is entirely geological, and must be answered by an appeal to sections. I will endeavour to explain these in such a way that any one who wishes to go into the details may readily find the important points.

I shall use the word glacial in a wide sense, so as to include everything, from the beginning to the end of the last time, when conditions of extreme cold prevailed *in the area in question, or in adjoining areas so situated that by supplying ice, or influencing the climate they must have directly and greatly affected the area in question.* I avoid entering into the controversy as to whether there were one or more periods of extreme cold in late geological times, and also whether man may not have lived in France or Africa or a lost land in the Indian Ocean, while glacial conditions prevailed in Britain, just as man now lives in North Britain and Norway, while glacial conditions prevail in the interior and off the coasts of Labrador and Greenland.

We have in East Anglia deposits of post-tertiary age which for our present inquiry may be conveniently grouped under two heads.

B. The older, consisting of (1) an irregular lower boulder-clay succeeded by (2) stratified sands and gravels with subordinate loam or boulder-clay, and (3) an upper boulder-clay.

A. The newer deposits, being the products of the denudation by sea, rivers, rain, &c., of the above, and of any still older beds exposed. The beds belonging to the older series *B*, which occur in

the area of which I propose to speak, are to be referred chiefly to the middle group (2), which, to avoid repetition, I may speak of as the Hatfield Beds (probably the equivalents of the Middle Glacial of Searles Wood), and well seen in the railway cuttings north of Hatfield and elsewhere in that neighbourhood.

They may be traced from Hatfield, over the chalk spur by Welwyn, by Hertford and Ware (*see* "Quarterly Journal Geological Society," August, 1868) into the valley by Parndon and Harlow. They are seen at intervals, *e.g.*, by Saffron Walden, Chesterford, Whittesford, &c., assuming, as they go north, more and more of the character they have in the Brandon and Thetford districts.

It is obvious that these deposits partially filled the valleys and hollows, and that since their emergence, extensive valleys have been scooped out through them, generally along the old lines.

The earlier products of this denudation are of course of very great antiquity, and to them I would refer all the beds in East Anglia in which flint implements have been found.

Loams occur at various horizons in the older series *B*, and loams of various age and origin, are found in the newer series *A*. These loams are generally all so much alike, that it would be quite impossible to identify them with any certainty in separate sections by their lithological character alone.

Moreover, where an overlying loam is derived from an immediately underlying loam, it is often impossible to draw any line between them in one section, especially if the section is so small that the discordant overlap cannot be made out.

Even in chalk, the *remanié* top part cannot be distinguished from the somewhat weathered lower part, except where surface flints are found embedded. How much less can we expect to distinguish the resorted from the undisturbed material in the case of loam? Fortunately, however, most of the sections appealed to for evidence of the glacial or inter-glacial age of man in East Anglia are of considerable extent, and owing to various happy circumstances tolerably clear.

I will now give my interpretation of them. In the large pit at the new Waterworks for Thetford, there is a loam on blue clay, which rests on a loam similar to that above, and below this. boulder-clay has been proved to 60 feet. All these I refer to *B*. In the adjoining pits it can be seen that a newer loam, sand and gravel rests irregularly now on one, now on the other of the above-mentioned beds. These I refer to *A*.

In an old pit, north of Thetford Station, gravel (*A*) may be seen resting irregularly on blue gault-like clay (*B*). In a large pit north-east of Thetford Station there is a section about 32 feet deep, in which the upper loam, sand and gravel (*A*), is seen resting irregularly on boulder-clay (*B*), which is here often

composed almost entirely of chalk. At the base of the troughs and pans of the upper loam, &c. (*A*), there are generally lines of sifted or sorted material, such as, *e.g.*, sometimes a bed which seems derived almost entirely from the Kimmeridge clay, or from the Neocomian. The different specific gravity of the material would probably be sufficient to explain such washing together of different material out of the drift to various positions in the channel.

In the Culford brick pit (near West Stow, Bury St. Edmunds), boulder-clay is seen resting on buff loam, with often a bed of sand to 3 feet in thickness between the clay and the loam. There was not much evidence, but it seemed to me that all the deposits in this section should be referred to the lower series (*B*). So far, I have given sections in which any one may see what I mean by the series *A* and *B*.

Looking from Culford, across the alluvium of a small tributary of the Lark, and above the obvious terrace of gravel at the base of the hills on the other side, we see far up the slope traces of an obscure terrace, becoming more and more clear and well defined as we follow it to the left towards Icklingham. Near the farm at the Icklingham end, there is a deep pit in brick-earth, with pupa, pisidium, bones and antlers. In the upper loams (*A*), all along this terrace, pupa and pisidium are not uncommon. I am not aware that they have ever been found in the underlying series (*B*). Underneath the brick-earth, and exposed at the surface in a pit a little nearer the Beeches Pit, is a bed of gravel just like any ordinary gravel along the river terraces of that district, or of the Thames or the Somme. Further on, where the terrace is almost obliterated, the Beeches Pit occurs. In this pit there is a yellowish loamy boulder-clay (*B*), and in distinct and well-defined hollows in this boulder-clay, a series of loams, sands and gravels (*A*), at the base of which occur bands coloured by black and red oxides of iron and manganese, in which I saw bones and antlers, and in which the flint implements are said to have been found. Patches of rainwash (or head or run of the hill), derived from boulder-clay or chalk or loam, as the case might be, rest irregularly on either *A* or *B*. But no undisturbed boulder-clay overlies the implement-bearing bed.

The next section I shall refer to is that on Broomhill, at Botany Bay Brickworks, near Brandon, in which also flint implements have been found. The workman has been collecting for some time, but has never had a genuine specimen when I have visited the pit. He pointed out the exact position from which he had obtained them, which was in a band of clayey gravel coloured by oxides, and in all respects resembling that

which forms the lining of the troughs and hollows in the Beeches Pit. It seems to be an old deposit, in the upper part of what is now a dry valley, which has been scooped out through a great mass of loam, boulder-clay, &c. (*B*), which had partly filled it. Implements are said to have been found also in the south corner of the same pit where the beds are let down in pipes, and somewhat contorted. Such contortions are often due to the removal of part of the calcareous matter of the chalky gravel or loam or the underlying chalk itself, and the consequent dropping in of the earthy residue and overlying beds. Some of the curves are apparent, not real contortions, being due to the alteration of colour by infiltrating water. But this section is not clear.

On the whole, the evidence goes to show that from the first emergence of land out of the glacial sea, sub-aërial and aqueous denudation have been working at it and cutting it down often along the lines of old pre-glacial valleys, leaving a river terrace here, a mass of rainwash or other talus there; estuarine silt in one place, pond-mud in another, and that man appeared on the scene early in this post-glacial period.

Before that emergence, icebergs and coast-ice carried their load south, and dropped it in the sea (witness the boulder-clays with shells or shore shingle or beds of sand). Sometimes the ice grounded (witness the great furrows and the contortions). Sometimes the sea sifted the material (witness the sorted and stratified gravel, and sand, and loam, and clay). Sometimes the ice dropped it as it got it (witness the boulder-clay with moraine-like masses). Even in the midst of such unfavourable conditions man may have been a not unfrequent visitor, as now, along the shores of arctic seas, but as a matter of fact, there is as yet no evidence that man was there.

On the AGE of the HYÆNA-BED at the VICTORIA CAVE, SETTLE, and its bearing on the ANTIQUITY OF MAN. By R. H. TIDDEMAN, M.A., F.G.S., of H.M. Geological Survey.

It was lately remarked in a discussion at the Geological Society, arising upon Messrs. Mello and Dawkins' papers, on the Creswell Crag Caves, that the "whole matter" of the antiquity of man, so far as the the Victoria Cave bore evidence, resolved itself into a very small point. The speaker, Dr. Murie, went on to state, that "he had examined a certain bone from the cave, hitherto supposed to be a human fibula, and in his opinion it might be almost any bone, and that all ideas of the habits of the

cave-dwellers founded upon it were therefore mere fictions." This second remark may be considered superfluous, for no such ideas founded upon it have, I believe, made their way into any scientific works or periodicals. Without at all calling in question Dr. Murie's skill and judgment, we may remark that the latest expressed opinion is not, *ipso facto*, the most correct, and it will remain to be seen whether it will have greater weight than the previously expressed opinions to the contrary, by Professor Busk, Mr. James Flower, Professor Rupert Jones, and others.

Be this as it may, the chief value of the Victoria Cave lies in the opportunity which it gives of correlating the ancient faunas contained in it, and which are *elsewhere* associated with the bones or handiwork of man, with certain great events in geological time. But supposing that the fibula cannot be regarded as a certain proof of man's presence in that district at the time when the hyæna-bed was being formed, we have not yet come to the end of the evidence bearing on this particular point; objects bearing marks made by man are as good proofs of man's presence as his own bones.

On the 10th of June, 1875, when the Rev. Mr. Crosskey and I were at the cave, a small bone turned up bearing upon it marks which cannot be considered to have been made by other than human agency. It lay in 2-foot parallel 1, under the datum-line, from which the position of the "finds" is measured, and at a depth in the deposits of 25 feet from the original surface.* It is about $2\frac{1}{2}$ inches of the dorsal end of a rib, but the articulating surfaces are broken off. There are at least nine transverse nicks, with others less distinct, joining them obliquely, and one longitudinal nick near the head. They appear to have been made by some clumsy instrument drawn backwards and forwards. They are quite unlike the gnawings of either rodents or carnivores. Professor Busk considers the bone to belong to a small ruminant.

About eleven months later, on the 2nd of May, 1876, another bone, a small humerus,† was found bearing very evident tool-marks. It occurred in parallel 17, at 17 feet right of the datum-line, at a depth of 15 feet. The marks are very clean cuts as if made by a sharp instrument, so sharp indeed as almost to suggest that they may have been done with a metallic tool. The cuts however are evidently not made subsequently to the discovery of the bone, for the surfaces therein exposed are of the same colour and have the same dark and ochreous staining and incrustation as the general surface of the bone. Its occurrence,

* Its register number is 117.

† Register number 118.

however, at the depth of 15 feet, in the hyæna-bed, and surrounded by bones and teeth of hyæna, bear, elephant, and rhinoceros, precludes us from assigning to it a modern origin in spite of the sharp nature of the cuts. It may be a question whether a sharp flint flake properly hafted may not be capable of producing in a bone of a freshly-slaughtered animal marks similar to these. In the absence of Professor Busk, I forwarded it to Mr. William Davies, of the British Museum, and he says the humerus "is that of a very small goat, but evidently of an adult. It is smaller than the humerus of a true Shetland sheep with which I compared it, and besides the narrower fossa which you refer to, there are other points in which it differs from the same bone in the sheep." Mr. Davies goes on to remark upon the good preservation of the bone, which leads him to think it must be of comparatively recent age. This, however, is a common condition in bones from the hyæna-layer.

On this point it may be well to remark that no fact has been more strongly brought out by the exploration, than that the condition of a bone is no test of its age; *cæteris paribus*, of course, a newer bone will be fresher than an older, but the nature of the matrix in which a bone is buried has a far greater influence over its destruction or preservation than the mere lapse of time; for this reason, that it may either, if permeable, expose it to destructive influences, or, on the other hand, if impermeable, entirely arrest decay. The bones of the Roman layer in the loose *débris* outside the cave are in a far worse condition than the greater part of the much older remains in the stiff clay of the hyæna-bed. Many bones from the stiff clays of the lias and oolites are better preserved than the bones of sheep which have been bleaching on the moors during the brief space of our own lifetime. These remarks are strikingly exemplified by different portions of a pair of reindeer antlers found scattered about the upper beds in the cave; some portions which had been exposed on the surface or imbedded in lighter material, had lost their outer coating and were very friable, whilst other fragments from a stiff clay were in good condition. To have assumed that their portions were of different ages would have been wholly wrong, and the fitting together of them undeniably proved it.*

There is perhaps another objection which should be considered. It is commonly supposed that goats, with some other domesticated breeds, had not found their way into Britain during pleistocene times, and that they were subsequently imported for the first time by neolithic herdsmen. *A priori*, it does not seem impossible for goats to exist and even flourish outside the pale

* See also "L'Homme pendant les Ages de la Pierre." Par M. E. Dupont, p. 197.

of civilisation. There can, I think, be scarcely any doubt that in the Victoria Cave remains of goat are not uncommon in the hyæna-bed associated with elephant, rhinoceros, hippopotamus, &c. The same fact has been observed by M. E. Dupont in many of the Belgian bone-caves.* It seems therefore at least unreasonable to suppose that the goat was living on the continent in pleistocene times, with this ancient fauna, and yet did not accompany them to this part of the then continent, when they overspread it. Putting all these circumstances together, and regarding them as impartially as possible, it is by no means easy to escape the conclusion that we have in the Victoria Cave evidence of man's co-existence in the North of England with the ancient fauna already mentioned. This is a fact which the cave holds only in common with other caves, and in itself would be of comparatively little importance, did not the possibility arise of correlating the existence of these early congeners of man with the occurrence of widespread physical changes.

It is my intention now to treat of this question. In doing so I shall confine myself to the broad outlines of geological knowledge bearing on the matter. It would be out of place to bring before this Society the minuter details, ascertained in the excavation of the cave and carefully noted from time to time. These have already appeared in summary in the British Association Reports, and prove without room for doubt that the hyæna-bed in the cave has glacial deposits resting upon it, and therefore is in a sense pre-glacial. Ingenious speculations have been brought forwarded by Professor T. McK. Hughes and others to show that under certain circumstances it is just possible that these glacial beds were not deposited where they have been found by glacial action; but none of these suggestions tally with all the facts recorded, and in seeking to lay what is a difficulty to some minds, they really raise others which are greater.

The older bone-bed, or hyæna-bed, in the Victoria Cave, contains amongst others, beside hyæna, the following, *Elephas antiquus*, *Rhinoceros, leptorhinus*, hippopotamus.† These constitute a well-marked fauna, about which no doubt is entertained by geologists that they are contemporary. They are found in old river-gravels, in France, in Switzerland, and in the South and East of England,

* See also "L'Homme pendant les Ages de la Pierre." Par M. E. Dupont, *passim*. In a letter to the author, bearing date August 24, 1877, M. Dupont writes: "La chèvre de nos cavernes ne peut être distinguée de la chèvre ordinaire. Elle y est associée au Mammouth, au *Rhinocéros tichorhinus*, à l'*Ursus spelæus*, etc. J'en maintiens absolument la co-existence avec ces espèces perdues. Ces observations corroborent donc la vôtre, et je ne doute pas qu'elles ne soient constamment confirmées à l'avenir."

† The remaining species are not so accurately determinable, or, occurring as they do above as well as below the glacial drifts of the North-West of England, give no definite indications of time, and therefore cannot assist us in this inquiry.

and in each of these countries are associated with the remains of man or his works. In Belgium they occur in caves similarly associated.

The geologists who have worked chiefly in the South of England, and studied the superficial deposits there, maintain as a body, and I think rightly, that these remains are there post-glacial. But some go further, and do wrongly in assuming because they are post-glacial in the South of England, they must be so in the North. At first sight this appears almost an axiom, but further study will show that it is a great error, and I believe it is to this apparent discrepancy between the age of these deposits in the North and South of England, that much of the scepticism which has prevailed as to the pre- or inter-glacial age of man is owing. I must, therefore, beg permission to examine this matter, for there is really no need for such great differences between the opinions of the geologists of the South of England and those of the North. In the North our opinion that these animals are pre-glacial subjects us to the accusation of putting the cart before the horse. We may accept the metaphor and justify the deed. Horses usually in the South of England are put before the cart, and were I to say that in the North I have seen the horses harnessed to the backs of the carts, my statement would probably be received by some with derisive incredulity. The fact is none the less true, and when I state that in these cases there is a horse also in the shafts in front, the difficulty vanishes and the fact may be admitted. We have perhaps in the North drawn more attention to the horse behind the cart than to that in front, because its position is not so generally recognised. At the same time, we admit most fully that the shaft-horse of the South is an admirable and necessary institution, which we cannot dispense with in the North, though we reserve to ourselves the right to retain a horse also behind the cart (as a drag) when the steeper gradients of our hills and dales render its assistance indispensable.

To drop metaphor, we may admit that man as a contemporary of this particular fauna is in the South and East of England post-glacial, whereas in the North-West he is pre-glacial, and yet there is no contradiction in these two statements. We have, in short, evidence of two strongly-marked glacial periods, of which the earlier left its traces far down into the South of England, whereas the latter did not extend its icy fingers further south than the Midland Counties, probably not so far.* This is by no

* Mr. Searles Wood, junior, I believe, first expressed an opinion that the drifts of Scotland and the North of England were of later age than those of the Eastern Counties, but on somewhat different grounds. See *Geological Magazine*, vol. ix, p. 171, 1872.

means an easy thing to prove, for glacial deposits of one age are very similar to those of another; yet there is, I think, a clue to the difficulty.

In 1871 I had the honour of reading a paper to the Geological Society of London, in which I endeavoured to prove the former existence of a wide-spread ice-sheet in the North-West of England.* The conclusion that I came to from the evidence which I had been collecting for some years, was that nearly the whole of that region south of the Lake District and west of the Pennine Chain had been covered with an extensive ice-sheet which had worked over the country in the main southward. The direction of the travelling of such a sheet was shown by the scratches on the rocks and the movements of materials, which appeared to have a general trend irrespective of all but the greatest physical features of the district.

The valuable papers of my colleagues, Mr. Dakyns,† which appeared at the same time, and Messrs. Ward,‡ and Goodchild,§ which came out subsequently, have demonstrated a similar state of things in the districts to the East, North, and North-East respectively, and further to the south the conclusions have been supported in the main by Professor Ramsay,|| Messrs. John Aitken,¶ and Thomas Tate,** and have received the assent of most geologists.

If any be sceptical of these conclusions, let them at least consider what would be the effect of such a sheet of ice of the great thickness which it must necessarily have been, moving over the ground slowly but irresistibly. All previous surface-accumulations, such as soil, scree, or talus, older glacial drifts, and river-gravels would be removed from their position, ground up and worked up into glacial drift. The greater part of this would be carried long distances in the direction of the ice-flow. On a change from a cold to a more genial climate, as the ice

* "On the Evidence for the Ice-Sheet in North Lancashire and adjacent parts of Yorkshire and Westmoreland." *Quarterly Journal Geological Society*, vol. xxviii, p. 471-191, 1872.

† "The Glacial Phenomena of the Yorkshire Uplands." *Quarterly Journal Geological Society*, vol. xxviii, p. 384, 1872.

‡ "The Glaciation of the Northern part of the Lake District." *Ibid.*, vol. xxix, p. 422, 1873.

§ "The Glacial Phenomena of the Eden Valley and the Western part of the Yorkshire Dale District." *Ibid.*, vol. xxxi, p. 55, 1875.

|| "Physical Geology and Geography of Great Britain." Third Edition, p. 161, 1872. Also, "How Anglesey became an Island." *Quarterly Journal Geological Society*, vol. xxxii, p. 119, 1876.

¶ "On the Unequal Distribution of Drift on opposite sides of the Pennine Chain." *Ibid.*, vol. xxxii, p. 184, 1876.

** "The Glacial Deposits of the Bradford Basin." *Proceedings Geological and Polytechnic Society of the West Riding of Yorkshire; New Series*, part ii, p. 101.

slowly receded, it would leave the solid rocks bare of all previous drifts, covered only by the mud and boulders and rubbish melting out of it, which itself had made, and the coarse gravels formed by the streams flowing out of the ends of the glaciers in their slow retreat. And in thus losing all earlier surface-accumulations, we should also certainly lose all traces in the open country of all its former inhabitants, whether man or beast.* Flint implements would disappear, if they had existed, equally with the less durable remains of man. Only in the shelter of caves or rock fissures would there be a chance of any traces of the older inhabitants remaining. And just this state of things which should result if an ice-sheet had passed over a portion of the country, is precisely what we do find in the North-West of England.

Professor Boyd Dawkins, I believe, first called attention to the fact that those areas in Great Britain in which the marks of glaciers were the freshest and most abundant, coincided with those which were barren of the remains of the pleistocene mammalia, and inferred in the then state of our knowledge that the areas in question were covered by ice *at the time* that pleistocene animals were so numerous in the caves and river deposits of Southern and Eastern England.†

The subsequent discovery of the hyæna-bed and its contents at Settle, and still later the finding of the same fauna in an old river-gravel overlain by glacial deposits in a cave in Lothersdale near Skipton, both in well-glaciated districts, showed that these animals had existed there before the last *great* glaciation. Had they existed in that country after it, we could not fail to have found their remains somewhere in the river-gravels of that district, which must have been at one time as fully occupied by them as the South of England, where they are now found so abundantly in the river-gravels.‡

Our ice-sheet of the Northern Counties could not spread south for ever, and must have had a limit somewhere, and we find evidence of that limit in districts which bear no distinct traces of glaciation. The high country of the peak and the Mountain Limestone of Derbyshire is free from those extensive sheets of glacial rubbish which occupy the country to the east, west, and north, of it as may be seen in the valuable drift-map by Professor A. H. Green, in the Geological Survey Memoir on that

* First suggested by Professor T. F. Jamieson, on *à priori* grounds, in, I think, his paper, "History of the Last Geological Changes in Scotland." *Quarterly Journal Geological Society*, vol. xxi, pp. 161-203, 1866.

† "Popular Science Review," October, 1871.

‡ See remarks on this by the author, "Geological Magazine," vol. x, p. 11; *ibid.*, p. 140; "Nature," vol. ix, No. 210, p. 14.

county.* The outlying patches of drift which do occur in it are probably the worn remnants of an old and earlier glaciation.

It seems likely that this district, and some other patches of high ground a little further north, were like the so-called islands forming the coast of Greenland, described by Dr. Robert Brown in his invaluable paper.† These are only insulated by the ice and separated from each other by the great broad tongues of ice which drain the universal sheet of the interior. He likens Greenland and its interior ice-field to a broad-lipped shallow vessel with chinks in the lips here and there, and the glaciers, like viscous matter, pouring out through them, the broad lips being the "islands."

The ice-sheet must have been melting away and thinning away considerably when at its maximum both to the west and east of the Derbyshire hills, and there is nothing unreasonable in supposing that such high ground may have been comparatively free from ice, whilst its sides were hugged by the broad sheet flowing from the Lake District and elsewhere, but thinning away to its final limit a little further south. Professor Dawkins' interesting discovery of rhinoceros in the scree or talus of the steep hill-sides near Castleton in the Peak District, is evidence that no ice-sheet or glacier has passed down that valley since that beast was feeding there; and in that fact the superficial deposits show their similarity to those of the south country and differ from the state of things existing in the well-glaciated region to the North. This occurrence, though at first sight exceptional, may really be regarded as a strong confirmation of this view.

To sum up, we may say that, even supposing we had never found traces of man in the Victoria Cave in the older pre-glacial beds, his great antiquity would be there fairly proved. A set of animals which are well known to have existed with man elsewhere, is there shown to have lived before an age of great land glaciation, and to have had its remains swept from that country by it. That ancient fauna lived in the South of England and the Eastern Counties upon a land-surface covered with the vestiges of a still older and more extensive glaciation, of which the traces have been swept away in the North by that later glaciation.‡ This glacial period, which I consider to

* "The Geology of North Derbyshire and the adjoining Parts of Yorkshire," p. 134. See also on this subject the papers above cited, by Messrs. John Aitken and Thomas Tate.

† "On the Physics of Arctic Ice," *Quarterly Journal Geological Society*, vol. xxvi, p. 677, 1870.

‡ It is here unnecessary to enter into the question as to how much of the East Anglian drifts are submarine or sub-aërial. It does not much affect the matter with which we have to do, and may well be left to the eminent geologists who are studying that part of the kingdom.

have been later than man's introduction into Europe, would appear to be the same which spread the whole of Scotland and perhaps of Ireland, with a sheet or sheets of land-ice, and was succeeded in the North of England by a submergence whose utmost depth is disputed, but was not, in my opinion, greater than 400 or 500 feet.*

These views are in the main what I have held for some years. They seem to me almost entirely to reconcile the facts which have been gleaned, and to harmonise many of the discordant opinions which have been held by geologists in all parts of the kingdom. The details, of course, require filling in, but the broad views thus roughly stated may claim at least to be founded upon facts.

A letter from Mr. Whitley was read, and photographs of flint implements from Brixham Cavern were exhibited, and thanks voted to Mr. Whitley for the same.

The following letter from Dr. Nicolucci was read.

ISOLA DI LIRI,
4th May, 1877.

MY DEAR FRIEND,—

I am grieved at not yet having made any communication to you upon the men of the caverns of Italy. I can assure you that the traces of troglodyte man are not rare in Italy. They have been met with in a grotto near Torino di Sangro, in others in the Valley of the Vibrata of Viletta, Barrea and of Cappadocia, in the Abruzzi, as well as in Mount Asperano, near Roccasecca, and at Cape Leuca (Pouilles). Of all these grottos which have been inhabited in the neolithic age, I possess in my collection almost all the objects met with in stone, in bone, and pottery.

Another grotto in the Island of Palmaria (in the Gulf of Spezia, Genoa) has been explored by Capellini and Regalia, and here have been met with, among the *débris* of animals, fragments of human remains and object of human industry of the stone age.

The grotto of Mount Tignoro, near Livourre, has furnished to the Marquis Strozzi two crania of the polished stone period. Others have also been given to the late Regnoli from the grotto of the Chateau on the mountains of Pita, and still others have been met with by the Curate Don Perrando Deo Gratias in the cavern

* I am here referring to the "middle-sands and gravels" of Lancashire. I have for three years seen good reason for supposing that the undoubted marine deposits at much higher elevations, such as those of Moel Trefaen and Macclesfield, have really nothing to do with this, but are relics of an earlier submergence which survived the later glaciation of the North of England ice-sheet, but my reasons must be reserved for another occasion.

of the Matti near Perti, in the territory of Savona (Liguria). All these crania have been described briefly by myself in the report already published upon the Anthropological Exposition, and of Pre-historic Archaeology at the Congress of Bologna. ("L'Age de la Pierre dans les Provinces Napolitaines," Par M. Nicolucci.)

An important discovery is that which has been made by M. Issel of many skeletons in the grotto of Finale, in Liguria. These skeletons, which have unfortunately suffered many injuries in their transmission from Finale to Geneva, have not yet been studied. They are destined for the pre-historic museum at Rome, and I am engaged to go there to study them.

A complete cranium, with fragments of many others have lately come into my hands. It has been withdrawn from a grotto near Matera (Basilicata), in the same stratum which contained a great quantity of objects worked in flint, in bone, and in pottery.

If more precise descriptions of all these crania would interest the Anthropological Institute, I will endeavour to collect the different notices, and to communicate them in an express work addressed to the learned Society to which I have the honour to belong.

I do not doubt that the discussion which is to be opened on the 22nd of May, at the Anthropological Institute, upon the present state of the question of the antiquity of man, will be very important, and I shall read with the greatest interest the details of this discussion.

I have pleasure in repeating it that I am your very devoted,

GIUSTINIAN NICOLUCCI.

DISCUSSION.

Prof. BUSK wished to explain, before the discussion commenced, the circumstances connected with the interesting fragment of bone, for the determination of which he was personally responsible. This "bone of contention" was represented by the cast which he held in his hand. He was surprised that such a large superstructure had been raised upon that particular piece. It was merely a fragment, evidently of a fibula, one of the most variable bones in the body. It was received by him, together with a large collection of other remains, from Mr. Tiddeman, and for a long time remained an insoluble problem. At last, after many conjectural determinations by himself and others, Mr. James Flower, the well-known articulator to the Royal College of Surgeons, discovered in the College a human fibula of unusual size, and with which, as he pointed out, the Victoria Cave bone corresponded in many particulars. This determination, with the reasons for it, and illustrated by figures, was published in the *Journal* of the Institute. At the same time, Mr. Busk was per-

fectly open to be convinced that it might be ursine. But although Prof. Boyd Dawkins had been good enough to show him bones of fossil bears of surprising size, none of them quite came up to the one in question. Nor at Toulouse, where there is such an enormous collection of ursine remains, did Mr. Busk observe any of corresponding dimensions. He was himself still disposed to regard the specimen as a fragment of an abnormally large human fibula, but thought that at present it would be unsafe to build any strong conclusions upon it.

Professor ROLLESTON: I have been much impressed with the liability to disturbance of the fibula. Once in digging out a British skeleton, buried in the usual contracted fashion, before coming down to the skeleton we came upon a fibula standing vertically. When we came down to the skeleton, I cleared all the stone and earth away from it, and found that the fibula in question, instead of being a bone from some previously interred and removed body, was actually one of the fibula of the skeleton lying horizontally at the bottom of the grave. Yet it is easy to see how this bone is eminently liable, as the flesh round it and the ligaments binding it decay, to be acted upon as a lever by stones settling down upon it. Then its pointed ends favour its moving. So Professor Busk, writing (Congress of Pre-Historic Archaeology, 1868, p. 152) of the Genista cave at Gibraltar, says, "There were about thirty thigh bones, and eighteen to twenty tibia, but strange to say, portions of only three *fibulae* were observed."

As regards the judging of climate from the presence of mammals, I rather disbelieve in it. The reindeer lived in Germany in the time of Julius Cæsar, and was spoken of by him as *bos cervi figura*, as the Canadian reindeer is called "Carriboo" (Cerfbœuf) now. The hippopotamus and rhinoceros have been supposed to indicate warmth of climate, but they appeared to me to stand the late wretched weather in the Zoological Gardens at least as well as most smaller animals. Why should they not? The power of resisting cold and generating heat depends on bulk, and bulk increases as the cube of the linear dimensions. But Schrenk, in his excellent work on "Amoorland," 1858, tells us that the tiger, an animal connected, however wrongly, with notions of tropical heat, was to be found in the island of Saghalin, which was in the cold weather connected by a bridge of ice with the mainland; and that its food there was not the buffalo nor the roe, but the reindeer. The roe was not found in Saghalin, not on account of the cold, but on account of quite another reason, the presence of pinewoods at the point of crossing from the mainland over to the island. This shows how much care is required in arguing to the presence of climatic or other inorganic condition from the presence or absence of particular animals. Reptiles are more surely indicative of temperature than most other animals; non-metabolous insects again than insects with perfect quiescence as *pupæ* to protect them during winter, but vegetable life was a surer guide as a whole than animal.

Professor PRESTWICH: You, Sir, have justly observed that to consider this question thoroughly requires the knowledge of the palæontologist, the archæologist, the anthropologist, and the geologist. I think it especially concerns the geologist in regard to the sequence of events. Palæontologists have been rather apt to overlook the geological conditions under which these specimens are found. We have to deal with the sequence of man from his first appearance in time geologically to that period when it comes within the range of ethnological inquiry. I will confine myself to the evidence in the South of England and in the North of France. In the South of England it is particularly clear and decisive. Our datum-line is positive; it is afforded by the spread of the boulder-clay, which ranges as far as south as London. That represents the glacial period. The post-glacial period I consider to be subsequent to the period of the deposit of the boulder-clay.

The first discoveries in this country were made in those districts of the South of England which had been covered over by the boulder-clay. It is in the drift and gravel of the valleys excavated in this boulder-clay that palæolithic flint implements have been so commonly found, consequently, it is clear that in all that area, man is of post-glacial age. If we get two levels, one on either side of a valley, a certain number of feet above sea-level, with masses of boulder-clay cut off on either side, then, of course, the *débris* at the bottom of the valley will consist of sand and gravel, derived from materials formed by the destruction of the boulder-clay and other strata which originally traversed the valley. The materials so spread out are newer than the boulder-clay, consequently, man in these valleys is post-glacial. There are sometimes as many as two or three successive levels in those valleys. If a valley excavated to a certain depth and the gravel-beds spread on that level, contain no flint implements, while at a lower and second level, flint implements are found, then we assume that man was introduced into this area only when the valley was excavated to the greater and later depth, and when the gravel was spread out on the level now occupied by our present rivers. It is interesting, therefore, to determine what may be the character of the mammalian remains of the successive terraces. Unfortunately the mammalian remains of all this period are so alike that it is impossible to determine from such evidence the age of those terraces. In the case, however, of bone-caves found on the sides of valleys and in districts where there is no boulder-clay, we are necessarily left to the palæontological evidence alone. In looking at the correlation of the deposits of the South of England, with the deposits which preceded, the glacial period in the North, there is evidence in both areas of the land having been inhabited previous to the boulder-clay period by animals which were likely to serve as the food of man. There is no *à priori* reason why man should not have existed before that period in the North of England; much, however, will depend upon that more complete evidence, which possibly Mr. Tiddeman may have to bring before us at some future period.

I am disposed to consider, with Mr. Tiddeman, that the cave which he is now investigating at Settle may be of pre-glacial age. I think it is not conclusive, but the evidence rather tends to show that it is pre-glacial. Further research may, I hope, decide on that particular point.

Taking the lower valley of the Thames, the evidence is this: We find in the valley, on terraces resting some 20, 30, or 40 feet above the present level of the Thames, palæolithic flint implements. At the Reculvers such gravels are found at an elevation of about 60 feet above the river, but as we ascend the valley we find that the evidence of the existence of man is confined to the lower levels. At Reading, in the high-level gravels on the banks of the Kennet, no flint implements have been found. Again, in the neighbourhood of Oxford, mammalian remains and flint implements are found only in the low level, and not in the higher level river-gravels.

Thus at the mouth of the Thames Valley, at the point nearest to the coast of France, we find evidence of man's existence in the higher level older river-gravels capping the Reculver Cliffs. He does not then appear to have penetrated into the Upper Thames Valley. It is evident that at the period that these higher terraces were deposited in the upper part of the valley of the Thames, very cold conditions yet prevailed, though post-glacial and subsequent to the boulder-clay. In the neighbourhood of Oxford, boulders of several tons in weight, carried down from a long distance, are found in these beds; and I have recently observed in the neighbourhood of Reading that this gravel where it rests upon a surface which cannot be dissolved away, such as a stiff clay, in which there is no calcareous matter, presents a very peculiar eroded surface, and it fortunately happened the last time I was there, a superficies, the size of this room, was exposed, and the flat surface of the clay presented a succession of pits or hollows apparently caused by the impinging of masses of gravel-laden ice, evidently the result of mechanical force. Thus the data for carrying man back to the boulder-clay period, may be considered as an account audited and passed. But it seems to me there is also an important suspense account now accumulating. In France there is an important series of observations which have been made by competent men and good observers, and it will not do to ignore some of the points they have brought forward. I have reason to believe from my own observations in the North of France, that there is evidence of man being pre-glacial even in the North of France. There is also one specimen which I have had in my possession for many years. I can only answer for the locality and the condition of the bone, but not for the labelling, and from the peculiar way in which it has been cut and then broken, it certainly bears all the appearance of having been artificially worked; but I must put it to a suspense account.

One further remark I have to make. Some may think from the observations of my friend, Professor Dawkins, that the oldest flint implements we know are ruder than the later ones. Mr. Dawkins relies upon the evidence from Creswell Cave, but the cause why

those implements are so rude is that they are made of quartzite, which cannot be finished in so neat a way as flint. In some part of the older deposits of St. Acheul, for example, the flint implements are better made than the newer ones found in the lower gravels of the Somme Valley.

Col. LANE FOX wished to say a few words upon a point not yet touched upon in any of the papers which had been read, viz., the means by which valleys had been eroded, and the time necessary to accomplish it. The uniformitarian theory, by which it was assumed that all the work of excavating valleys had been performed by means of their rivers flowing under the same conditions as at present, had been a good deal modified of late years, and he thought he could add a few facts from personal observation tending to show that some modification of the theory was necessary. With respect to the valley of the Somme, there was evidence afforded by relics of the Roman and bronze age found in the peat in the bottom of the valley, that the river had not materially lowered its bed since those relics were deposited, and therefore it must have taken an enormous time to work out the whole valley by means of a river which flowed with the same eroding power as at present. The valley of the Somme, however, was comparatively so narrow that it was possible the whole of it might have been eroded by such means, if sufficient time were allowed. But if it could be shown that the same conditions prevailed in other very much larger valleys where the work to be done was much greater, that would afford fair presumptive evidence that the eroding force must have been greater. He could mention one or two facts which showed that the Thames like the Somme had never shifted its bed since the bronze period. The first of these was that the river some way below Oxford, at the village of Dorchester, made a great bend; the ground on one side was high, and on the other, in the space inclosed by the bend perfectly flat and low; there was an ancient intrenchment running across this low ground from bank to bank, and converting the promontory formed by the bend of the river into a fortress. It had been ascertained by means of the relics, consisting of pottery, flints, bronze implements, &c., associated with this intrenchment, that it was certainly as early as the bronze period, and perhaps earlier, no relic of Roman work having been found there, although Dorchester, close by, was a Roman station. The intrenchment in order to serve its purpose must have rested its flanks on the river at the time it was made, and the fact of their resting on the banks at the present time, although they are only a foot or two in height, showed that the river had not shifted or lowered its bed since the bronze age. Other evidence giving the same results was found in the same river lower down. Between Richmond and Battersea the Thames makes three or four bends in the comparatively flat bottom of the valley, which is here more than four miles wide. He had found flint implements of the drift type deposited in sedimentary sand and gravel at Acton 80 feet above the present river, the discovery of which was communicated by him to the Geological Society and

published in their *Journal*. The river then since these implements were deposited must not only have lowered its bed 80 feet, but, according to the uniformitarian theory, must at each successive level have shifted its bed repeatedly so as to work out the valley, here more than four miles wide. Yet bronze and stone implements have been found in considerable numbers in all the various bends of the present river, dredged up from the gravel at the bottom by the dredging machines that have been employed of late years, and proving that the river had neither lowered nor shifted its bed since the bronze period, but if anything it has risen since that time. Was it possible, he would submit, that at this rate of progress, if progress it could be called, the erosion of the valley could be attributed to the present river flowing under the same conditions as at present? But if, as believed by Prof. Boyd Dawkins and Mr. Tiddeman, man existed in these parts during the subsidence of the glacial epoch, that would account, he thought, for a much greater flow of water having passed down these valleys in palæolithic times than was the case at present. In the valley of the Solent the same class of evidence was obtained. Mr. Evans had shown what a large amount of depression and erosion must have taken place in this valley since drift implements were deposited on the hill at Southampton. The valley of the Solent, from Portsdown to the Isle of Wight, is nine miles wide, and we have evidence in the Roman fortress at Porchester, how little it has changed in modern times; yet in the centre of this valley near Southsea Common, Col. Fox had some years ago discovered a flint station of the neolithic age, including celts, scrapers, and flakes in great abundance, the site of which was less than 10 feet above the present high-water mark, showing that flint implements continued to be fabricated in the valley after land and water had assumed its present distribution. All these facts, he thought, favoured the opinion that powerful eroding forces must have been at work before that time. The very valuable papers which had been read treated only the geological aspects of the question, but as the President had observed, there were ethnological and sociological problems to be solved, how long would it have required for the various races of man to diverge, and the earliest traces of culture to be evolved? He trusted that even if no other result came of the conference, it would show that we had not yet exhausted the subject.

The Rev. Professor SAYCE: I must begin by confessing that the evidence of language, as regards the antiquity of man, is not so decisive as that of geology. The history of language shows that his antiquity is very considerable, not that it must be measured by geological epochs. The condition of the civilised languages of the world, when we first become acquainted with them, implies a previous development of many thousands of years. It is only under certain conditions that the vocabulary of a language changes rapidly; under other conditions it changes slowly. The grammar of a language, on the other hand, may be said, roughly speaking, to

change never, and its structure to change very rarely. If we apply these conclusions to two or three languages belonging to the principal families of speech, I think we shall arrive at the following results. Take for instance the Semitic class of languages. By means of the Assyrian monuments, we are able to get back to about 2,000 B.C. for a starting-point for these. But at that date these languages were already pretty much what they are to-day. They have changed scarcely at all in either structure, or grammar, or vocabulary. At the same time, we can see plainly enough that they pre-suppose several earlier stages of existence; and when we come to compare their grammar with that of the old Egyptian, it would seem that there was a time when the parent language of the Semitic tongues was but the sister of the parent languages of the old Egyptian. Now in order to allow for the changes that must in this case have taken place in the structure of the Semitic languages on the one side, and in that of the old Egyptian on the other side, before they become known to us, we must pre-suppose an undetermined but very great period of time.

Next, let us glance at the Aryan family. Here the different dialects can be traced back to a parent speech spoken in some part of Western Asia, probably on the table-land of the Hindu-Cush. This parent speech can be hypothetically restored by a comparison of the later languages and dialects which have descended from it. In all points of grammar and structure this parent speech was as fully developed as the Sanscrit, or Greek, or Latin of a later day. The people who spoke it were in a comparatively advanced state of civilisation, and the language itself was in a highly advanced condition. Not only had the distinction of number, gender, and case been elaborated in the noun, but the verbal conjugation, the last product of the grammatical intelligence, had been pretty fully worked out. The numerous words denoting spiritual, moral, or intellectual conceptions, which originally had a purely sensuous meaning, had already come to have their later and metaphorical sense. As soon as we analyse the grammar and vocabulary even of this ancient parent speech, it becomes quite plain that it is the last result of a long series of successive stages of growth.

Take again another language—the old agglutinative language of Babylonia. The earliest monuments that contain it must be placed between 3,000 and 2,000 B.C. On those monuments the language already appears in a state of the most utter decline and decay. And since this language was one of those literary and cultivated dialects which, as a rule, change but very slowly, we have in it evidence of an idiom which has behind it a long undetermined past. If, as several scholars believe, this language, the so-called Accadian, belongs to the Ural-Altaic family of speech, in order to get back to a period when the parent of Accadian, and the parent of the modern Ural-Altaic languages were one and the same, we must assume an enormous period of time.

There is another consideration connected with the evidence borne by language to the antiquity of man, which must not be overlooked.

The science of language seems to show that most languages, whatever their present structure may be, were at one time in a condition similar to that in which the Eskimo, or North American languages, are at the present day, that is to say, a condition in which the word was not as yet distinguished from the sentence in which it was incorporated. In the case of languages so highly developed as defined, and those of the Aryan family, where the individual words are sharply marked off one from another by grammatical suffixes, as far back as our data carry us, we must be allowed an amount of time not to be accounted by hundreds but by thousands of years, if we are to get back to the primitive stage of polysyntheticism with which all languages, I believe, may be shown to have begun.

These, so far as I can see, would be the general conclusions to which the evidence at present furnished by the science of language as to the antiquity of man would seem to point.

Mr. T. K. CALLARD: Do I understand that the outline of a horse represented in the diagram, belongs to the palæolithic age, and was found in the cave-earth in association with extinct animals?

Professor DAWKINS: Yes.

Mr. CALLARD: We have always been led to think that palæolithic man was a rude savage who could only chip his flint implement, and knew not how to smooth it. We seem now to be getting evidence about palæolithic man of a different character. We have heard to-night of a bone needle being found in the cave-earth of Creswell caverns. A bone needle suggests to one's mind at once some step in civilisation. Men don't make bone needles unless they intend to use them, and that leads our thoughts to a palæolithic tailor, and in this very cave-earth we find evidence that artists existed at that time, and no mean artists either. Not one in three persons in this country could make a sketch like that of the horse before us. At any rate they had artists, and one thing strikes me that this Royal Academician of the palæolithic age had for his model a horse that had had his mane *clipped*. If so this indicates another stage of civilisation. We are very far advanced now, and it leads me to ask the question whether, finding the works of man in close proximity to the extinct mammalia, the mammoth and the woolly rhinoceros, justified us in saying that man therefore lived at a very remote period. I should be inclined to think that this does not so much prove the antiquity of man as it proves that the extinct mammalia are more modern than they are supposed to be.

The co-existence of man with the extinct mammalia tells nothing of the period of man's existence, unless it is also proven *when* the mammalia referred to became extinct. Of this there has been no proof adduced, and therefore to my mind the argument for man's antiquity based on the contemporaneity of man with the extinct fauna has not been sustained.

Mr. HARRISON said the palæolithic character of the flint implements found at Cissbury in connection with the remains of existing fauna, including goat and pig, showed that the form and finish of

prehistoric tools and weapons were not of themselves a safe criterion of age. Though the earliest implements would necessarily have been the rudest, the converse was by no means true. There were doubtless art-centres in early times, as there are now, and Cissbury would not appear to have been one of them, but rather belonged to the far larger class of village manufactories. Some of the pits, he wished to say as the result of personal observation, may have been opened but a short period before our era. Their age does not directly affect the question of the antiquity of man in this country, which depends for its solution on geological facts.

The PRESIDENT:—I will, before calling on the authors of the papers to reply, make one or two remarks. One of the questions which have been principally discussed is this: whether in the first place we are to assign any implements found in this country to a pre-glacial, or inter-glacial period, or must we restrict them to a post-glacial period. There is one argument which has not been insisted upon to such an extent as it may deserve. It is, that some of the implements found in the gravels in glaciated districts, are made from materials derived from glacial drift, and are therefore post-glacial. The form and character of these implements give a guide by which I think you may fairly argue that others of a similar character belong to approximately the same date. Some forms of implements are no doubt very persistent in their type, but if in a certain part of England you find implements associated with a certain fauna, and if you find them associated with the same fauna in other parts, both deposits are presumably of the same date, and if one be post-glacial, the other is also. The more we examine the theory of Mr. Dawkins, the more difficult it will be to determine from examination of the associated fauna, whether implements are pre- or post-glacial. In cave deposits, however, there are certain distinctions to be pointed out. In the cave described by Mr. Dawkins, there was a succession of beds one above the other, and I think it is in the upper beds of more recent date that relics of the primæval tailor, and the primæval artist were found. Similar relics have been found in the caves of the south of France, and a needle has been found in Kent's Cavern, but at a higher level than implements which are of forms characteristic of the river-gravel. Looking at the enormous lapse of time comprised in the palæolithic period, which is evidenced by the amount of time requisite for the erosion of the river valleys, it seems possible that we shall eventually be able to establish some chronology for the palæolithic relics. If we could form any idea of the amount of time that was requisite for the excavation of a valley such as that of the Thames, we could approximately judge of the antiquity of man in this country, but for the last 2,500 years, the variation of the river-bed and its level is practically nothing, and therefore we are entirely at a loss for any measure of the power of the denuding agent, and fall back on some hypothesis as to variation in the climate. Geologists are pretty well agreed that there must have been a much greater rainfall at that period than at the present time, and the more

constant saturation of porous rocks would, by preventing the infiltration of rain, increase the eroding power of rivers.

I have already mentioned some of the discoveries which have been made abroad, the accounts of which must be received with caution.

Some of the evidence of cut bones is, to my mind, by no means satisfactory, for I have seen what appeared to be incisions, induced by natural causes. Some here may, for instance, remember a pair of horns of the Irish elk which were embedded in each other, and were exhibited to the Geological Society.

Under certain conditions, bones seem susceptible of receiving an impression, almost as sealing wax would from a seal.

Still, all the evidence of various classes must be collected, and it will become to a certain extent cumulative. In the case of the bones discovered by Professor Capellini, the incisions are very sharp, as if made by metal. If they were executed by metal implements, it is an argument against their antiquity, but my own impression is, that they are due to the teeth of some kind of shark. The question as to the distinction between the glacial period in the South of England and that of the North, is one of great interest. If either in the North or South we can carry back the appearance of man in this country to a time but little removed from the glacial period, we may safely infer he must have existed in other parts of Europe at a still earlier date. I will not however detain you by offering any further remarks, but will call upon the authors of the papers for their replies.

Thanks having been voted to the authors of the papers—

Prof. BOYD DAWKINS said that the first point to be considered was the antiquity of man in the Victoria Cave, based upon a small fragment of fibula, and two fragments of goat's bones which presented the appearance of having been cut. The fibula seemed to him to be ursine rather than human, and in size came within a very little (two-tenths of an inch) of the circumference of one of *Ursus spelæus* from Lozère. With regard to the goat's bones, he shared the opinion of Mr. Davies, of the British Museum, that they are not fossil, but recent, in other words, he did not believe that they were originally imbedded in the stratum containing the remains of the hyænas, but were derived from an upper stratum of post-Roman age in the cave, in which they are exceedingly abundant. The goat hitherto has not been found in any pleistocene strata in this country or in France, all the repeated cases of its occurrence turning out on examination to be the result of the mixing of two suites of animal remains, the one pleistocene, and the other historic or pre-historic. This is very generally done by the workmen, and this was probably the case in the Victoria Cave. But if these equivocal data be assumed to prove that man was living in this district while

hyæna s occuied the cave, the evidence is still unsatisfactory as to their pre- or post-glacial age. The hyæna stratum itself appeared to him, while the explorations were under his direction, not to be of clearly defined pre- or inter-glacial age; and his doubts as to this point were, he believed, shared by Prof. Hughes. The rudeness of the palæolithic implements in the Creswell caves from the lower strata as compared with the more highly finished ones found above them, seemed to him to imply a progress in the arts in that district. *A priori*, the more highly finished should succeed the ruder implements, although of course many cases of their being mixed together were on record. Into the other avenues of discussion he would forbear to enter.

Professor Hughes, in reply to a question put in the course of the discussion, said he thought the evidence of antiquity upon which they could rely most was that derived from the amount of geographical change that had taken place since the deposition of beds containing remains of man. Observing the rate at which such changes take place at the present time, we must, *assuming conditions to remain the same*, allow a proportionately longer time for the greater changes which have taken place since the first appearance of man. But it all depended upon the assumption that conditions remain the same, as a small upheaval, for instance, would cause a rapid cutting back all along the Thames Valley and a small depression would have the contrary effect.

Referring to the remarks of Colonel Lane Fox on the age of the present channel of the Thames, he pointed out that it was probable that man had interfered more with the free course of the river during the period which has elapsed since the bronze age, than he had in all previous time, and therefore, in that case, conditions had not remained the same.

Referring to the observations of Professor Prestwich on the occurrence of pipes and pans in non-calcareous strata, he thought that they might often be explained by the settling down of stones and sand into the softened and puddled surface of the clay, the muddy water from the bottom oozing up through the stones and overflowing, and the process being repeated with greater effect each time as the pan grew deeper and the load of stones heavier. He thought that this was the explanation in the case adduced by Professor Prestwich, and in all such pipes in the valley brick-earth.

With regard to the evidence from the gravels and clay found in caves, he had already in a paper read before the Society, brought forward evidence to prove that in the case of the Pont Newydd Cave referred to by Professor Dawkins, which contained remains of the great extinct mammals and of man, the deposits containing the fossils were certainly post-glacial. ("Journal Anthropological Institute," December 9, 1873.)

He thought that a stronger case had been made out from the evidence found in the Victoria Cave near Settle, but even there he was convinced that the deposits containing mammalian remains

were post-glacial. He had watched the excavations from the commencement, and was of opinion that the boulder-clay which overlapped the cave deposits had fallen from formerly-existing pits or choked swallowe-holes, such as were so common on the limestone above.

Mr. TIDDEMAN: As to the boulders at the cave's mouth, I thought it unnecessary to bring the question forward to-night, but as Professor Hughes has raised it, I must follow him. There is one very important point he forgot in his section of the cave. We found a mass of talus lying beneath the cliff and dipping outwards; it was 20 feet thick, and at the base of the talus we had the deposit of boulder-clay, and at the back of the boulder-clay was the hyæna-bed. Professor Hughes says this boulder-clay fell from the top of the cliff at a time subsequent to the age when the bones were deposited, and might therefore have been recent. We have above that clay 20 feet of limestone fragments weathered from the cliff above by the rain and frost of successive seasons: that represents a very considerable lapse of time since the boulders were deposited there. If the boulder-clay fell at a subsequent period, how is it that it was not mixed up with the talus? If it fell immediately after the ice melted away and before the talus formed in any quantity, why that implies all that I maintain.

I may remark that the fibula and the cut bones are after all the smallest and most insignificant part of the evidence. The matter we have to consider is whether that fauna which has been found in Europe and in our own isles with works of man, and in some places with his remains, lived at a time which we are able to correlate with certain great physical events. As to Pont Newydd Cave, the implements made from travelled boulders to which Professor Hughes has referred, are no evidence at all that the men who made them lived there since the last glaciation of that district. That they were made in or after glacial times does not prove that they were not prior to certain other glacial times.

With regard to a fibula making its way down into the earth, I will not dispute the fact that a bone might do that in certain cases, especially after Professor Rolleston's experience, but in the Victoria Cave it would have had great difficulty in getting down. In soft mud, it might have a chance of getting down, but if it were modern, you would have other modern things going down with it unless it had a start at the first.

Professor ROLLESTON: It is pointed at both ends.

Mr. TIDDEMAN: I do not think there could be a possibility of its working its way down. There were large blocks of stone and beds of stalagmite which we had to blast in opening the cave down to it, and it lay at a depth of 25 feet. I sincerely hope geologists will bear in mind, as new facts crop up, the suggestion that we have in England evidence of two great glacial periods, and test it by them.

The meeting then terminated.

ANTHROPOLOGICAL MISCELLANEA.

SOCIETY for the PROTECTION of ANCIENT BUILDINGS.

A NEW Society has been formed for the above object, and in the prospectus, which has been circulated, the founders say: "No doubt within the last fifty years a new interest, almost like another sense, has arisen in these ancient monuments of art; and they have become the subject of one of the most interesting of studies, and of an enthusiasm, religious, historical, artistic (and it may be added, anthropological), which is one of the undoubted gains of our time; yet we think that if the present treatment of them be continued, our descendants will find them useless for study and chilling to enthusiasm. We think that these last fifty years of knowledge and attention have done more for their destruction than all the foregoing centuries of revolution, violence, and contempt. For architecture, long-decaying, died out, as a popular art at least, just as the knowledge of mediæval art was born, so that the civilised world of the nineteenth century has no style of its own, amidst its wide knowledge of the styles of other centuries. From this lack and this gain arose in men's minds the strange idea of the restoration of ancient buildings; a strange and most fatal idea, which by its very name implies that it is possible to strip from a building this, that, and the other parts of its history, of its life, that is, and then to stay the hand at some arbitrary point, and leave it still historical, living, and even as it once was. In earlier times this kind of forgery was impossible, because knowledge failed the builders, or perhaps because instinct held them back." The Society starts with 160 members. The annual subscription is half-a-guinea, and the Honorary Secretary, W. William Morris, 26, Queen's Square, Bloomsbury.

A. LANE FOX.

PRESERVATION of ANCIENT MONUMENTS and ANTIQUITIES in OHIO.

VALUABLE records of the pre-historic earth-works of Ohio are to be found in the "Smithsonian Contributions to Knowledge," vols. i and iii. The plans and sections of ancient fortifications and other ancient monuments described by Messrs. Squier, Davis, and Whittlesey, are

examples to all pre-historic archaeologists of the detail and accuracy required for such purposes.

Notwithstanding this, however, it appears a great number of these monuments, in which the State of Ohio is so rich, are passing away under the operations of agriculture, without having been duly described. The State Archæological Association of Ohio was originated at Mansfield in September, 1875, and held its first annual meeting at Newark in October last. Its cabinet has been located at the Capital, and will be kept in the State House, with its permanence and safe-keeping ensured by the Government. The "Cleveland Leader" of the 3rd of June, contains an appeal from the Society to the citizens of the State to aid them in the objects of the Association. A State Museum of Antiquities is to be formed at Columbus, and the next annual meeting will be held at Cincinnati, on the 3rd September, 1877. Any person may become a member by forwarding to the Secretary, Mr. Stephen D. Peet, of Ashtabula, three dollars as initiation fee, which will entitle him to an equal part in the discussions, and a copy of the annual proceedings.

A. LANE FOX.

The following is a TRANSLATION of the greater part of the ADDRESS delivered by M. BROCA, President, at the Opening Meeting of the French Association for the Advancement of the Sciences, at the Havre Congress, 1877.*

I.

THE earliest memorials of man carry us back to a time when societies were already organised, and in which nations had already acquired a certain amount of civilisation. Savages have no history; their oral traditions change and alter their original form in each generation, and at last become lost, to make room for traditions equally transient, and the most important events are thus sooner or later consigned to oblivion. Writing alone fixes memorials on a monument or in a book. Narratives more or less historical cannot then go back beyond the invention of writing, and this invention, which implies culture to a certain extent, has of necessity been very slow in progress.

Some of the nations of antiquity it is true boasted of numberless ages for their past history; they paraded in their chronologies periods of tens, and hundreds of thousands of years, but criticism has without difficulty disposed of their claims. In these days, spite of the discoveries of Champollion, and the labours of Lepsius and Mariette and their followers, who have restored upwards of twenty

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centuries to the archives of ancient Egypt, no actual date can be assigned for the commencement of the *historic* period beyond six or seven thousand years.

Thus if we only consulted history, we might well suppose that man is quite recent in his appearance on the globe, and much later than those geological phenomena which have modified the conditions of life, and, by the change in climates, have also changed the floras and faunas. These opinions were everywhere accepted when geologists undertook the vast work of reconstructing the past ages of our planet, when our illustrious Cuvier created the palæontological system, when his genius reanimated the extinct species, and summoned before the tribunal of Science these mute but eloquent witnesses of the successive phases of our globe. Though still devoted to the hypothesis of sudden revolutions and universal cataclysms, Cuvier understood what an immense lapse of time is represented by a geological period, and, as the shortness of the historic period contrasted to such a degree with the incalculable antiquity of the fossil animals, was it not natural to believe that man had not appeared till long after them? This was Cuvier's conclusion, and it conformed with received ideas to such an extent that it at once became classical. Some went even further than Cuvier: the author of the "*Discours sur les révolutions du Globe*" (1825), confined himself to saying that there was no proof of the existence of fossil man, and added that it was *improbable*; but even this was not enough, and on all hands it was pronounced *impossible*. For all this, many facts opposed to this opinion soon appeared, but they were met only with doubts and scorn. It was in vain that, either in the floors of caverns, or in palæontological deposits, human bones mingled and confused with those of animals of the quaternary age were discovered; systematic objections were always presented; the floor must have been rearranged by upheaval, sinking, or landslip; man might have dug there to bury the dead; he might have been entombed by earthquakes in the caverns in which he sought shelter; he might have fallen by chance to the bottom of a deep and narrow cleft; his bones rolled about by torrents might have been deposited by accident in old water-formed channels. It was fortunate when the authenticity of the discovery and the competence and sagacity of the observer were not impugned. Thus were cast aside the discoveries made in 1828 by Tournal of Narbonne in the cavern of Bize (Aude), in 1829 by Christol of Montpellier in the caverns of the Gard, afterwards by Emilien Dumas and Dr. Pitore in two caverns of the Gard and of the Herault, and by M. Ami Boué, of Vienna, in the quaternary deposits of Lower Austria. The vast researches of Schmerling in the caverns near Liége (1833), and notably in the Grotto of Engis, now so celebrated, had no better reception. The remarkable cranium of Mont Denise (Haute Loire) found in 1844, by M. Aymard, in a bed of mud-lava which conceals the remains of many lost species, did however at last attract attention, but it was always urged in

objection, that this human relic might, through some displacement of the soil, have slipped to the bottom of a fissure.

Facts of this nature, in those days made no impression, however decisive they may appear to us. They were, so to speak, challenged beforehand. To overcome such an opposition, an overwhelming amount of evidence was required. To afford this, it was necessary to prove the presence of man, not only in caverns of the quaternary epoch or in ossiferous breccias, or in earth on the surface of declivities more or less liable to slip, but also in the soil of great valleys, in horizontal and undisturbed strata still *in situ*, and under such conditions as to render the hypothesis of their having undergone any kind of "remaniement" altogether impossible. The extensive beds of sand or gravel deposited in the bottoms of existing valleys by the powerful streams of the quaternary age most often combine these conditions. It was there that Boucher de Perthes sought for proofs of the existence of ancient man. There it was he discovered lying mingled with the bones of the rhinoceros and mammoth the flint weapons used by man in his struggles with these monsters of another age, and the innumerable implements fashioned by his hands to supply his wants.

Boucher des Perthes was not a certificated *savant*, and for a long time his assertions were not believed. His illusions were smiled at, and the dreamer who wasted his life in search of an impossible goal was pitied. But this dreamer possessed a conviction which gives courage, and a perseverance which leads to success. From 1840 to 1858 he struggled patiently with the indifference of some and the scoffs of others. He only asked for examination and verification, but he could not obtain even these, for Dr. Rigollot, the only believer he had convinced, was not in earnest. At last, after eighteen years of struggles, he saw the day of justice dawn. The celebrated English palæontologist, Falconer, willingly went to Abbeville in 1858 to examine at one and the same time the sites explored by our indefatigable compatriot, and the rich collection of worked flints and fossil bones there found. Other English *savants*, Messrs. Prestwich, Evans, Flower, and Lyell followed close at hand. They themselves made successful searches at different points in the valley of the Somme, particularly at St. Acheul, near Amiens, in a site already in 1854 pointed out by Rigollot. Stimulated by this example, French *savants* in their turn arrived; and M. Gaudry, M. George Pouchet, and others were able to obtain with their own hands axes of worked flint from the quaternary deposits of the Somme.

The facts discovered by Boucher des Perthes were thus fully confirmed. The sanction of public discussion alone was now needed. This was given them by the Société d'Anthropologie of Paris. In that body a *savant* whose prudence was equal to his good faith, Isidore-Géoffroy Saint Hilaire, declared that the last objections to the antiquity of man had vanished. The question was examined in all its aspects at several meetings, and all hesitation was removed. The discussions, published in the papers even before the appearance

of the Proceedings of the Society, had a great effect. Fossil man henceforth had an established place in positive science, and the glorious name of Boucher de Perthes resounded through all Europe.

This name will for ever be connected with one of the greatest discoveries. History is under obligations to all who have cleared the approaches to important truths, to all who have had but glimpses of those truths, as also to those who have supplied the proofs, but to him who has enabled her to triumph, a yet higher place is assigned. History will recount how before Boucher de Perthes, the fact of the existence of fossil man already rested on authentic grounds. It will record notably the discoveries made in the caverns of Liège by the learned and courageous Schmerling, and published by him in a work of the highest merit. To the names already mentioned, history will add those of Eberhardt of Württemberg, of Esper, of John Frere, who in the 18th century, before the classification of the geological epochs, dug up human remains and worked flints now recognised as belonging to the quaternary deposits; justice will be rendered to Jäger, who in 1835 recognised the great antiquity of the Canstadt skull (discovered upwards of a century earlier, and for long considered apocryphal); but with due praise to these workers in the advanced guard, it is Boucher de Perthes who will receive the homage due to the bold wrestler who maintained the final struggle and came off the victor.

The year 1859, which beheld the theory of the antiquity of man burst upon the scientific world with irresistible force, marks the commencement of an era rich beyond others. New and boundless horizons opened out before *savants*. All Europe, geologists, archaeologists, anthropologists, threw themselves into the work with startling energy. Only eighteen years have elapsed, and never perhaps in so short a time has such a rich harvest been garnered. Who can forget those days of new life when from the bowels of the earth, from the depths of caverns, sounded the voice of the past; when the fossil communities lived again, became again alive:—

“When the old world, like Lazarus, upheaved
The stone which held his now reviving youth
Within the tomb.”

Boucher de Perthes had only lifted a corner of that mysterious veil which hides the origin of man. He had proved that man had existed throughout the quaternary epoch, that he had been in our country, the contemporary of the reindeer and of animals which now only exist elsewhere, of the mammoth and other extinct animals. But was this all? and was not the human race even yet more ancient? This last question, more important than the other, presented itself at once. More important, I say, for each of the three periods of the tertiary age was of much greater duration than the quaternary. I will not here recount the researches concerning tertiary man. The discoveries of M. Desnoyers at St. Prest, near Chartres, and of Professor Capellini in many tertiary sites in Tuscany, tend to establish the fact of the existence of man in the pliocene age; those

of the Abbé Bourgeois, in the commune of Thenay (Loir-et-Cher), would carry back even to the miocene age, that is to say, to the middle tertiary, the existence of an intelligent being who could work flints, and could only be man.

But these facts, though collected by highly competent observers, and accepted after careful discussion by many eminent *savants*, are not yet sufficiently numerous or unopposed to constitute a definitive proof.

Tertiary man is as yet only on the threshold of science, and he is in the same position that quaternary man held some twenty years back. Will another Boucher de Perthes arise to prove his existence by evidence convincing to all? That is one of the secrets of posterity.

Quaternary man, on the other hand, has now become classical. He has been found in most parts of Europe, and in many places in the New World. His weapons and implements, preserved in many public and private collections, are numbered by hundreds of thousands. The diggings in the valley of the Lesse, in Belgium, have alone supplied 80,000 worked flints. These innumerable *débris* of quaternary manufacture have been got, sometimes from the earth of valleys in which the relative position of the strata is enough to mark their date: at others from deposits rich in natural flints, where man had established his workshops; here in the rock shelters where he camped; there, in the caves in which he lived. In the cave dwelling places the finds have been most abundant: in these last we have been able to study even the details of the life of a tribe, the remains of feasts, the weapons for the chase and for fishing, the sewing implements, all the products of the flint worker, to which may be added at a certain period, handsome implements of bone and reindeer horn: then, the symbols of power, ornaments, objects of commerce, and lastly, wonderful to relate, the works of artists, sometimes rude and uncivilised, at other times full of grace, motion, and truth, representing by engraving or sculpture the animals hunted in those days—the bull, horse, aurochs, reindeer, the great cave bear, and even the gigantic mammoth.

Thanks to many discoveries, the authors of which are too numerous to be named, quaternary man is now-a-days better known than many historical nations. He has his chronology, not one of years or epochs, like ours, but of archæological and palæontological periods, vast spaces of time, taking date according to the various fossil species which predominated successively around him, and according to the different types of implements marking the gradual evolution of his work. He has his history also, not indeed political, but anthropological; not that of peoples and chiefs who became celebrated, but that of races who supplanted and succeeded one another on the same soil.

These races are distinguished by the skulls and bones which have been found in the quaternary deposits. We cannot say we know them well, or even their exact number, for the valuable remains which represent them are as yet too scarce, and often too much

damaged to be of use as a foundation for complete descriptions. We, however, know enough to be certain of a great number and variety of quaternary races, and although the regions hitherto examined comprise only western and part of central Europe, we can henceforth, in this small corner of our globe, recognise and distinguish at least three fossil human races which may be referred to two essentially different types. I will first say what are these two types, and then what are these three races.

II.

Under the name *dolichocephalic*, which means long-headed, are classed the skulls of a long shape, and under that of *brachycephalic*, or short-headed, those of a round shape.

The horizontal contour of the head, an idea of which may be formed by looking at the opening of a hat, is a kind of oval, longer than it is broad, of which the form, in other respects very variable, depends principally on the relative extent of its two diameters.

When it is much longer than it is broad, or in other words, when the antero-posterior diameter much exceeds the transverse diameter, the skull is *dolichocephalic*, or long. On the other hand, when the difference of these two diameters is slight, it is *brachycephalic*, or short.

Between these two extreme types there is a medium shape, called *mesaticephalic*, or intermedial. In order to obtain, according to this classification, an exact definition, we measure the two diameters with a compass; we divide the second by the first, and obtain a decimal fraction called the *cephalic index*. The two first figures of this decimal are the *characteristic* of the index. We thus reduce the long or short-shaped skull to a numerical expression. Those are *dolichocephalic* in which the cephalic index is less than the fraction $\frac{1}{2}$, or as 77.7 : 100, the *brachycephalic* are those in which the cephalic index is greater than the fraction $\frac{1}{2}$, or as 80 : 100, and the *mesaticephalic* are those whose index lies between these two limits. But the variations of the cephalic index are so numerous that it has seemed advisable to distinguish two degrees of the *dolichocephalic* type, *i.e.*, the *dolichocephalic* proper, whose index is below 75 : 100, and the sub-*dolichocephalic*, whose index is above this point. In the same way, in the *brachycephalic*, we distinguish between the *brachycephalic* proper and the sub-*brachycephalic*, according as the index is less or greater than the fraction $\frac{1}{2}$, or as 83.3 : 100.

In consequence of the numerous mixtures of race during the historic period, these different forms of skulls exist to-day amongst nearly all the European populations to a varying degree of frequency.

Most often, however, there is a certain cephalic type, which prevails to a greater extent than any other, and which points to the greater influence of such and such a race. In France, for instance, the *brachycephalic* predominates from the Alps to Brittany, through the region occupied in Julius Cæsar's time, by the celebrated Celtic

confederation, whilst to the north of the Seine and the Marne in the ancient Belgic Gaul, the population is mostly sub-dolichocephalic. From this fact, and researches of a similar kind which have been made in other countries, we may conclude with certainty that the peoples of Europe are derived from many races, differing much in the shape of the skull.

The illustrious Swedish anatomist, Retzius, who first in 1842 established the difference between the brachycephalic and dolichocephalic forms, thought that this continued division of cephalic types might be attributed to the mixture of two races only, the one brachycephalic, the other dolichocephalic. At this date the existence of fossil man was not yet admitted, though many years previously Thomsen already had discovered the succession of the ages of industry, stone, bronze, and iron, and it was no longer doubted that before the period of the Indo-European migrations, Europe had autochthonous peoples. Combining this idea with his craniological studies, Retzius supposed that the primitive European race was brachycephalic, and that the dolichocephalic type was first introduced by the conquering Asiatic race. The obscure and complicated problem of the origin of the European race was thus reduced to a charming simplicity and clearness, and never had hypothesis such a general and rapid success. For nearly twenty years, Retzius's ethnogenic theory was admitted without opposition, and some few facts favourably interpreted, seemed to strengthen it: but when it was decided to investigate it more closely, these facts faded away one after another, and this brilliant theory, already much shaken, was finally upset by the discovery of the fossil human races.

The difference between the races of Europe does not date from the almost recent era of the Asiatic invasions, nor from that long age of polished stone which preceded the introduction of metals and succeeded the reindeer age. It goes back to the quaternary age. In that fact, Retzius's hypothesis would lose much of its importance; but further, the dolichocephalic type, so far from being the last arrival, is the earliest of all; the emigrations and mixtures of races far from developing, only weakened it, and these brachycephalic people considered till lately as autochthones, overcome and dispossessed by stronger and more civilized races, were, on the contrary, the invading strangers whose slow and progressive immigration modified, in a manner as decided as durable, the ethnology of Western Europe. They only appeared on the scene in the last days of the quaternary age. Before them two dolichocephalic races had successively occupied the land, and we shall now show the chief characteristic differences between these three races, recovered by science after so many centuries of oblivion.

III.

By what names shall we designate them? A race of which there are no records, can only have a conventional name. The most suitable one will be that of the place whence the first authentic

and characteristic facts concerning them were derived. On this plan, borrowed from geologists, MM. de Quatrefages and Hamy have called the three principal fossil races by the names Canstadt, Cromagnon, and Furfooz. The Canstadt race is the oldest of all, and its remains are the scarcest; by chance, however, they were the first discovered. In 1700 Duke Eberhard of Württemberg, a great antiquary, had some excavations made in an *oppidum* of the Roman period at Canstadt, near Stuttgart. The workmen drove their picks into the neighbouring earth, and discovered there a certain quantity of fossil horns and bones, amongst which was a large fragment of a human skull. But no attention was paid to this precious relic. It was only 135 years later, that is in 1835, that the learned palæontologist, Fred. Jäger, rediscovered it in the collection of the Princes of Württemberg and recognised its value. He ventured to conclude from it that man had been the cotemporary of the large quaternary animals. He was answered, that excavations of so remote a date were not to be relied on, but to-day the genuineness of the Canstadt skull is undisputed, and this cranium, so long disdained, has had the honour of conferring its name on the first fossil race.

Six or seven other skulls, very imperfect, some fragments of jawbones, and some portions of long bones are up till now the only remains of the Canstadt race.

Two of these relics have owed their great celebrity to the discussions raised concerning them: these are the skull found in 1857, by Dr. Führlott, in the Neanderthal cave, near Düsseldorf, and the lower jawbone, discovered in 1865 by M. Dupont in the Naulette cave, in the valley of the Lesse (Belgium). The jawbone of Naulette presents a combination of marks of inferiority truly surprising, and the general shape of the Neanderthal skull, its low and retreating forehead, the enormous projection of the superciliary arches, which recalls that of anthropoid apes, is not less startling. It is well, however, to add that the characteristics of the Canstadt race are shown in an exaggerated way in these two fragments.

The examination of the fragments of the long bones which have been rediscovered shows that the Canstadt race was very robust, but of small stature, probably not more than 1 m. 68 c. to 1 m. 70 c. (5 feet 6·14 inches to 5 feet 6·93 inches). The skulls, for the most part much damaged, can only be partially studied, still they can be clearly distinguished from all that have succeeded them. One word will describe their characteristic; it is *dolichoplatycephalic*, i.e., it is at once dolichocephalic and platycephalic. By this name *platycephalic* (the etymology of which is not quite correct) we designate skulls whose roof is very flattened, and which consequently have a very small vertical diameter.

The dolichocephalism of the Canstadt men reaches a point which for a long time has ceased to exist as a mark of race in Europe, and which is only seen in modern races among the Australians and Esquimos. A dolichocephalism, almost as marked, is found in the second or Cromagnon race, and even in one of the races of the polished stone age; but in them it coincides with a much

loftier form of skull, which contrasts in a striking way with the platycephalic race of Canstadt. This platycephalism is due mainly to the great reclination of the forehead, which instead of rising above the face in an elegant curve, slopes rapidly backwards, in consequence of which additional volume and prominence is apparently given to the whole sub-orbital region, including the naturally voluminous and strongly-curved *orbital arches*, together with the strongly developed *superciliary eminences* and glabella. The frontal region of the skull is thus considerably diminished; whilst posteriorly, on the other hand, the occiput projects very considerably. But notwithstanding this compensation, the cranial capacity remains very small, being apparently less than that even of the Hottentot and Australian. And it is still further diminished, it may be added, by the great thickness of the cranial walls. Other marks of inferiority are evident in the lower jawbone. These are the proclivity of the incisors, the great size of the molars, the total absence of the projection of the chin, and the elliptic form of the alveolar arch, which has a tendency to contract behind, like a horseshoe.

The only skull in which it has been possible to study the face in its entirety, is one found in the Forbes Quarry at Gibraltar. I think with MM. de Quatrefages and Hamy that this skull belongs to the Canstadt race; with which its connection is shown chiefly by the conformation of the superciliary eminences, the forehead, the occiput, the thickness of the walls, and the smallness of the brain-case; unfortunately the absence of characteristic fossils prevents our being able to determine the date of the deposit in which it was found.

Be that as it may, the Forbes Quarry skull exhibits extremely curious characteristics in its facial region; the very oblique line of profile, the very wide and deep nasal orifice, the great width between the cheek bones, the rounded and truly immense orbits, exceeding by more than 100 square millimetres the largest orbital area up to this time measured on any human skull, and lastly, what is still more strange, a strongly-marked convexity, in place of the canine fossa. Such are the principal features of this facial region, which has nothing analogous in other known races, and which would be a type in itself if we did not class it with that of Canstadt.

The Canstadt race was decidedly very savage, more so without doubt than any existing race; it possessed none but very rude implements, and its wandering tribes struggled painfully with the hardships of life on a soil of which the powerful quaternary animals, the great Bear, the Rhinoceros, and the Mammoth disputed the possession. Nevertheless its geographical spread was immense. It has been met with at Brux in Bohemia, at Canstadt in Würtemberg, and Neanderthal in the Rhenish Provinces, at La Naulette in Belgium, at Eguisheim in Alsace, at Paris in the lowest gravels of Gravelle and Clichy, at Arcy-sur-Cure in the department of the Yonne, at Mont Denise in that of the Haute Loire, at Olmo near Arezzo, in Tuscany, and lastly, probably in Gibraltar. It occupied therefore a large part of Western and Central Europe, where it kept its hold from the beginning of the quaternary age till near the

middle of that period. But then appeared another race more powerful and more capable of improvement, which possessed itself of its domains, and doubtless only succeeded it on its almost extermination. This second fossil race is that of Cromagnon. It derives its name from a rock-shelter discovered in 1868, near the village of Les Eyzies in the valley of the Vézère, Dordogne. The celebrated Engis skull, found by Schmerling in 1834, belongs to the same race, as also do the two skulls found in 1867 by M. Brun in the shelter of Lafaye, near Bruniquel; but Schmerling had referred the Engis man to a negro or a negroid race; and the Lafaye skulls were not sufficiently characteristic to reveal the existence of a special race. It is then the Cromagnon discovery which for the first time allows us to distinguish and describe the second fossil race, since then found in a host of other places.

This race represented in our museums by a score of skulls, some of which are perfect, by some skeletons almost complete, and by a very large number of bones more or less isolated, is now well known. It is dolichocephalic, like that of Canstadt, and almost to the same degree, but in other respects it differs widely from it. Its stature is much taller, the Mentone skeleton, which M. Rivière was able to preserve entire, measures 1 m. 85 c. (6 ft. 83 in.). The Cromagnon old man is more than 1 m. 80 c. (5 ft. 10.86 in.), and the mean height of the men is as high as 1 m. 78 c. (5 ft. 10.08 in.). The skull is very large, and its capacity is equal to, if not greater than, that of the modern Parisian. The strong superciliary ridge which characterises the Canstadt race is not found here. The forehead is not retreating, on the contrary, it is straight and high, forming as far as the bregma a fine curve, below which the frontal eminences and the glabella, reduced to a moderate size, form an even surface. The vertical diameter is well developed, and the lofty well-arched roof contrasts with the platycephalic roofs of the skulls of the first race. The occipital region is always roomy, and still considerably vaulted, but it is only moderately prolonged behind the parietal bones.

The facial region presents distinct characteristics quite as marked as the foregoing. The chin, instead of retreating, as in the cases of La Naulette and of Arcy, stands well out, and the lower incisors have become vertical. The superior orbital borders are no longer strongly arched; on the contrary, they are much flattened, and the orbital opening considerably developed in width, is of slight height. The nasal region, long and narrow, shows the leptorhithian shape common to all Caucasian races. Nevertheless, the cheek bones are very wide apart, and though the face on the whole is but little slanting, the region of the upper incisors presents a marked obliquity. The Cromagnon race is not only distinguished by the conformation of the skull and of the face, but also by that of the principal bones of the limbs. It would take too long to describe here the pilaster-like femur, the flattened or platycnemic tibia, the grooved fibula, the bowed ulna; these special forms, which are still found now-a-days in certain individuals, not combined—but isolated, and besides more

or less unpronounced—were normal in the Cromagnon people, which was in that respect distinguished from all modern races.

Those who consider the volume of the brain as an element of the intellectual power; those who know that in this respect there are mean differences of 130 to 150 cubic centimetres and more, between the superior and inferior races, have been somewhat surprised to find that the character of the mean cranial capacity, places the Cromagnon people on a level with ourselves.

But it must be noted that we are here dealing only with averages, for the study of individual cases show that on the contrary our maxima exceed theirs. Civilized societies support among them those who are weak and feeble, and infirm in mind or body. These outcasts of nature could not carry on the struggle for life in the earlier societies, where every individual could only reckon on himself, and where each day his existence depended on his own strength, sagacity, and foresight; in each generation the stern law of selection eliminated the weakly; and it is their absence which gives an apparent superiority, not alone to the Cromagnon race, but also to one of those which succeeded it during the polished stone period.

Besides, if we study the relative development of the anterior and posterior portions of the skull according to the Abbé Frère's method, we find that the anterior portion, which contains the nobler part of the brain, is markedly smaller in these prehistoric races, than in our modern races perfected by education.

If these observations be true, the large cerebral volume of the Cromagnon race ceases to be a paradox, but it is still of the greatest importance. It shows us that this race must have been very intelligent, and we know in fact that it was so. To it was due the remarkable perfecting of the working in flint. It was this race which first learnt to work the reindeer horn, bone, and ivory; and rising to the conception of art, discovered drawing, carving, and sculpture. Such progress in such an age, is evidence of the intelligence of the race that effected it.

This race does not seem to have spread as far eastward as that of Canstadt. Traces of it have been found in Southern Italy, and probably also in Great Britain, but it chiefly occupied France and Belgium.

The south-west of France, between Périgord and the Pyrenees, seems to have been its chief dominion. Its chronology embraces about the second half of the great quaternary age; its most ancient stations correspond with the mean level of the valleys, that is to say with the so-called *intermediate age*, and its latest bring us up to the end of the reindeer age, which was the third and last of the quaternary period. This reindeer age was the epoch of its prosperity, I might almost say its splendour. But when the disappearance of the reindeer, and the increasing mildness of the climate, marked the end of the palæontological period, and the commencement of the present geological epoch, the Cromagnon race heard the knell of their decadence sound.

It was reindeer flesh which supplied their chief food ; the reindeer horn was the first material of their industry and arts.

The manner of life, choice of dwelling places, division of labour, social constitution of these tribes, all depended on the supplies afforded by their hunting grounds, and when these were insufficient, the society of these reindeer hunters was thoroughly disorganised.

The chase henceforth could not supply the wants of a numerous population ; the future belonged to pastoral and agricultural peoples and the men of the polished stone age, who had arrived at this pitch of civilization, speedily supplanted the Cromagnon race. If we only consulted archæology, it might be thought that this last race vanished at the same time as the reindeer. It is certain, in fact, that the localities which characterise it, and the industry and arts connected with its name, are not found in the polished stone or *neolithic* age ; but the race itself, though considerably weakened, had not quite perished. Some tribes, as that of the Homme Mort cave in Lozère, maintained themselves for a long time, even in the midst of the neolithic population. Elsewhere, as at Solutr  , the survivors mingled with the new races ; and in this cross their influence was sufficiently strong to leave a lasting anthropological stamp. Their anatomical characteristics, doubtless rendered fainter, but always recognisable, persisted for a certain number of generations ; and even at the present day they sometimes re-appear, following the laws of the remote heredity, designated *atavism*.

The Cromagnon race has brought us down to neolithic times. The study of the third fossil race, or that of Furfooz, will bring us back to the reindeer age.

The Furfooz race was discovered in 1866 and 1867 by M. Dupont in several caves situated on the right bank of the Lesse, near the village of Furfooz, Belgium. A burial cave afforded skulls and bones which characterise the race, and the dwelling caves have enabled us to observe the industries and manners of the population. The Furfooz is quite different from the large Cromagnon race. The height, much less, varies between 1 m. 53 c. and 1 m. 62 c. (5 ft. .23 in. and 5 ft. 3.78 in.), descending as low almost as among the Laplanders. The bones of the limbs do not show in their conformation any of the remarkable characteristics which distinguish the men of Cromagnon. The femur, tibia, fibula, and ulna, are exactly similar to our own, and the sole peculiarity to be noticed is the degree of frequency of the perforation of the humerus in the olecranon fossa. This perforation, which has been wrongly considered as a simian characteristic, or at least one of inferiority, has no rank-signification either in man or in apes. It is not constant in any race, and is found more or less commonly or more or less rarely in both. It is now somewhat exceptional in Europe, but was much less so formerly. Thus it is only found in about 4 per cent. of the bodies in the Paris cemeteries, while in some burial places of the neolithic age it amounts to 15 or even 25 per cent. In the Furfooz race it occurs in 28 to 30 per cent. It is worthy of remark that the perforated humerus has not yet been found in the first two

fossil races. If it existed among them it was only as an exception, and we may suppose that this interesting characteristic was introduced into Western Europe by the Furfooz race.

But it is in the form of the skull particularly that this race differs from those which preceded it. With it appeared for the first time a rounded type of skull which is not quite the true brachycephalic, but which heralds the approach of the brachycephalic people. The skull on the whole is small, particularly so in the anterior portion; the forehead is narrow, low, and retreating, the roof but little elevated; in these respects the Furfooz skulls take place below those of Cromagnon, and are a little allied to the Canstadt type. The face, in comparison with the Cromagnon one is smaller, the cheek bones less prominent, the orbits not so broad, and higher, the nasal opening shorter in proportion to its breadth, the lower jaw bones smaller and less thick. That would be quite sufficient to distinguish the two races, even if the cephalic index did not mark the difference between them.

In the Cromagnon race, which is highly dolichocephalic, this index is only 73 on an average, whilst the two perfect skulls of Furfooz, with their indices of 79 and 81, the average of which is 80, are on the border of the mesaticephalic and the sub-brachycephalic, and it even seems probable that in these two skulls the cephalic index had been lessened by a mixture of race, for in the same grave and near them, a less perfect skull was found, which was very dolichocephalic, and belonging apparently to the Cromagnon race.

The Furfooz race only appeared in Belgium in the latter part of the reindeer age. No remains of the large mammal contemporaries of the mammoth have been found in the remains of its feasts. The reindeer even is rather rare, and it is evident that this animal was about to disappear. The Furfooz people only lived by the chase, and dwelt in caves. They had that much in common with the Cromagnon race, but were far inferior to it in other respects. They were not acquainted with drawing or sculpture, their industry was very backward, they worked flints careless in execution, their weapons of reindeer horn shaped without taste; nothing reminds us of the handsome daggers, and barbed arrows of the troglodytes of the Vézère. It may be questioned even if they were acquainted with the use of the bow; but they could make articles of pottery, very rude, it is true, but no trace of which is found in the stations of the Cromagnon race, and which marks a date little anterior to the polished stone age. At the same period that this mesaticephalic or sub-brachycephalic race inhabited Belgium, men with rounder heads, true brachycephalic people, with indices of 83, 85, and even more, penetrated into France on the eastern frontier. At Solutr  in the M acon country they mingled with those we can hardly call the reindeer hunters, for the reindeer was already scarce, and now it was horse flesh that formed the chief diet. In this locality, where the perfection of the flint working is remarkable, we find side by side with the Cromagnon skulls, some which are quite brachycephalic. Those found by Emile Martin in the upper sands of Grenelle,

tend to prove that the brachycephalic race had then advanced as far as the Paris district, but there is some doubt as to the degree of antiquity of this station, in which Emile Martin has not found the remains of any quaternary animal. Be that as it may, the discovery made in the loess of Nagy-Sáp near Gran, in Hungary, proves that the true brachycephalic people already existed on the Danube in the middle of the quaternary age. It is easy to understand that towards the end of that period they may have struck westward, but their ethnogenic influence was then much restricted. Their immigration did not actually take place till the following ages, which belong to the existing geological period, and do not enter into the present subject.

Should we consider these brachycephalic people as forming a fourth fossil race? Yes, no doubt; if we give a purely morphological acceptation to the word *race*, but, if we join to that the idea of *filiation*, the result will possibly be different. It is, in fact, neither impossible nor unlikely that the Furfooz race was nearly affiliated to these true brachycephalic people, that it was a first swarm from them, modified by intermixture, after a long residence in the midst of the dolichocephalic race of Belgium, and actual community of habitation, as the fact of their common burials clearly proves.

Since the quaternary period of which I have spoken, many centuries have elapsed; numerous populations and many races have, before and since the historical period, clashed and supplanted each other on our soil; and it is not the lightest task of Anthropology to determine amongst the physical, intellectual and moral characters of the existing population, the respective influences of so many diverse elements. Nations, like families, are fond of counting up their ancestors, of enhancing the length of their genealogy, and of regarding the antiquity of their origin as a title of nobility. Our complex nation, which derives its modern name from a Germanic people, its civilisation from the Latins, its chief glory from the Gauls, may now add to its past an incalculable series of ages.

If it does not blush for the barbarism of the Celts, why should it be ashamed to number among its ancestors those neolithic Triptolemi who knew how to render the soil fruitful by agriculture; those rough quaternary hunters who had skill to wrest its possession from animals more terrible and more real than the monsters with which Hercules fought—and above all those intelligent Troglodytes of the Vézère who, first of mankind, were able to kindle the torch of Art long before the Assyrians and Egyptians?

Barbarous no doubt they were, but are not we also barbarous in some degree? we who can only settle our differences on the battlefield. They were not acquainted with electricity or steam, they had neither metals nor gunpowder; but wretched as they were, and with only weapons of stone, they carried on against nature no mean struggle; and the progress they slowly effected with such efforts, prepared the soil on which civilisation was hereafter destined to flourish.

P. BROCA,

Professeur à la Faculté de Médecine de Paris.



Photo. by Capt. Stewart R.E.

Philippe Simonin, Abbé de Saint-Denis, 1770-1771

Heinrich

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

JUNE 12TH, 1877.

COL. A. LANE FOX, F.R.S., *Vice-President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The election of Dr. CROCHLEY CLAPHAM, Yorkshire, as member of the Institute, was announced.

The following presents to the Library were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the ACADEMY.—Bulletin de l'Académie Royale de Copenhague No. 1, 1877.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Pétersburg, Vol. XXIII, No. 3.

From the AUTHOR.—Una Microcefala. By Dr. Carlo Gracomini.

From the AUTHOR.—Nowy Przyczynek do Antropologa Przed-historycznej ziem Polskich. By Dr. J. Kopernicki.

Tijdschrift voor Indische Taal-Land-en Volkenkunde. Part XXIV. Verslag, van eene verzameling Maleische, Arabische, Javaansche en andere Handschriften. By L. C. Sanden Berg.

Notulen van de Algemeene en Bestuurs-Vergaderingen Van Het Bataviaasch genootschap.

From the AUTHOR.—Papers relating to the Mandan and Pawnee Languages. By Prof. F. V. Hayden.

From the AUTHOR.—The Growth of Children. By Dr. H. P. Bowditch.

From the INSTITUTE.—The Journal of the Canadian Institute. Vol. XV, No. 5.

From the MANX SOCIETY.—Illiam Dhône and the Manx Rebellion, 1651.

VOL. VII.

From the SOCIETY OF ARTS AND SCIENCES AT BATAVIA.—*Tijdschrift* XXIII, afl. 5, 6—XXIV, afl. 1, 2, 3; *Notulen* XIV, 1877, afl. 2, 3, 4; *Het Malush der Molukken*. By F. S. A. de Clercq; *Verslag van eine Verzameling Handschriften*. By L. W. C. Von den Berg; *Catalogus der Ethnologische Afdeeling van het Museum 2 druh*.

From the EDITOR.—*Nature* (to date).

From the EDITOR.—*Revue Scientifique*. Nos. 48 and 50, 1877.

Mr. W. J. KNOWLES then read the following paper, and exhibited many objects referred to therein.

FLINT IMPLEMENTS, *and* ASSOCIATED REMAINS *found near*
BALLINTOY, CO. ANTRIM. BY W. J. KNOWLES.

ON making an excursion some time ago round the north coast of Ireland, in search of antiquities, I visited a place called Whitepark Bay, near Ballintoy—a quiet recess enclosed on the land side by steep cliffs—and found lying exposed on banks of sand a great quantity of flint implements. In a short visit of less than three hours, I collected 114 scrapers, and 52 other flint tools; besides hammers, cores, a grain rubber, having both upper and under portions, and bone implements. I got associated with these a large quantity of bones and teeth, some of which were human, the others being those of horse, ox, deer, pig, dog, &c. The objects were found not in hollows, as at Portstewart, but on the top of a bank of sand extending for about half-a-mile in length, quite close to the sea, and about 30 feet above the sea-level. In several places along the top of this bank, there is a layer from 3 to 12 inches thick, more solid and coherent than the surrounding sand bank, and coloured dark by carbonaceous matter. The greater quantity of the implements and bones were lying exposed on the surface, though some appear never to have been disturbed since exposed, the upper side having a white porcellaneous crust, while the underside shows a clean unweathered surface; but a considerable number of implements and bones, with shells, chiefly patella and littorina, were found more or less embedded in the dark coloured matrix. On the surface of this dark layer there are several collections of stones, similar to ordinary building material, arranged mostly in a circular form, which I believe to be the remains of ancient dwelling-places. I measured the diameter of one of the best defined of these, and found it 27 feet. The floor inside this circle is darker and of greater thickness and solidity than the ordinary dark layer, and as far as I examined, I found very

few remains of any kind in it. The dark layer outside the dwelling corresponds more or less with the Danish kitchen middens, and may have been a little thicker at one time, having lost somewhat in thickness by denudation. At one time this layer and the objects it contained had been buried to a considerable depth with sand, as is evident from a small remnant of this covering, about 20 feet in thickness, still remaining at one corner. This has been well protected by a thick covering of vegetation, including masses of bramble, wild rose, &c., but a breach has at some time been made which enabled the wind to commence its work of destruction, and all the covering has been removed much faster, I conceive, than it accumulated. I imagine the covering to have been heaped up in this way. When no longer used by the ancient people, the surface, owing to its being a rich soil, would quickly get covered with vegetation. Of the sand that would blow on to this surface the greater portion would be blown away again, but a few grains would become entangled among the blades of grass, and as the vegetation would grow up farther, a little more sand would be retained, and so on, the increase in thickness being an exceedingly slow process, and depending on the quickness of the vegetable growth, and the quantity of sand it would be able to detain and protect from the wind.

The scrapers are in greater abundance than any other implement, showing I think, that the preparation of skins for clothing was the next essential occupation to the procuring of food. They are mostly of good size, and none of them very small like some of those found at Portstewart. In many instances they are roughly made, having teeth-like prominences projecting from the edge. Perhaps a certain roughness may have been sometimes necessary in a preparatory course of dressing, and the more finely-made scrapers may have been used for finishing. Some of the scrapers are neatly dressed all round, resembling in some respects long flakes, which are frequently found dressed round the edges and over the back. I found one or two of the latter, and I think their use is not very well known, but I believe them to be a more highly finished form of scraper.

There is another class of implements which I found to be pretty abundant, though not so numerous as the scrapers, that I would invite special attention to. They are much larger than the scraper, and are not of any well-defined shape, but all have a thick back and cutting edge, and could be held in the hand and used for chopping. Seen singly or found in a different situation, one might not feel inclined to acknowledge the greater number of them to be implements at all, but when compared

together they have a common character, and being found with other remains, evidently undisturbed since first laid there, I have no doubt in my mind that they were used as tools, the marks of use, and in some cases of dressing, being quite visible. I have tried some of these in cutting a branch from a tree, and find that they may have been very useful to the ancient people for a similar purpose. I also found some small flint axes, and several pointed and coarsely-dressed implements usually described as lance-heads.

The fields around this place are covered with flint flakes, scrapers, cores, &c., similar to those found on the sand, but the sandbank has the advantage of having many remains of the pre-historic races associated with the flint implements. Among these we have the hammers used in chipping the flint, but the quartzite pebbles seem to have been scarcer here than at Portstewart; and basalt, greenstone, and altered lias have been resorted to. In the wall of one of the dwelling-places, I found one of the oval tool-stones. It appeared to me as if it had been laid carefully in a crevice of the wall, and lain there since last used. It is hollowed on both sides, and has a small piece broken off one end, but there is no evidence of its having been used as a tool. Two of these objects have been found with the flint implements at Portstewart, and this is another instance, going to prove, I think, the oval tool-stone to be of the stone age.

The bone implements are not in any way peculiar, I believe. One is a pointed bone, and was probably used as an awl; another is flat, pointed at one end and indented at the other, but the indentation may have been part of a hole left by the other end of the implement breaking off; the third is a portion of a tine of deer horn, with a single hole bored through it near the thick end. I also found the end of an antler, which though not a tool, has marks of sawing on it. Near to it was a flint flake, which fits into the cuts, and was I believe the implement used in making them. If so, the flake and antler must have lain together undisturbed from the time when the operator, perhaps by some sudden impulse, dropped them, until they were recently picked up. I also think it deserving of notice that the upper and under portions of the grain rubber that I have already mentioned, were found quite close to one another.

There are two other objects which I found lying on the surface detached from the matrix, which may not be of the same age as the objects already described, though I am strongly inclined to believe that they are. The one is a piece of wood, a slightly crooked branch, very roughly dressed all over, with a piece broken off at one end. It is just such a piece as one might expect to be made for a handle to a stone implement, and

that a flint tool might make. The other is a portion of that part of the bark of the birch that peels off while the tree is growing, rolled up into a cylindrical form, $4\frac{1}{2}$ inches long, and $\frac{1}{4}$ inch in diameter. It has been neatly dressed, and has its edges cut thin and overlapping. I submit these with the other objects for the examination and opinion of the members of the Institute, and on farther examination of the dark layer I may be able to state whether there is anything to show that it has a preservative nature for objects of wood. I may mention that to make sure that flint implements could cut and prepare a piece of substance so corky in its nature as the cylinder of bark, I procured a similar piece of bark from the cherry, and I was able to make as clean cuts and sharp edges as I pleased. Indeed, in all cases in which I have made trial of flint tools, I found them most efficient; so much so, that I consider our predecessors who had no better implements are not at all to be pitied.

I found a considerable quantity of pottery scattered about, and as I recently found some bronze objects at Portstewart, I was inclined to believe that the pottery was all derived from burial urns that had, in the bronze age, been deposited in the sand that covered the flint objects, and that on the sand being removed by denudation, the objects of the stone and bronze ages got intermingled. This may to some extent be the case, but on examining the dark layer where still covered with 20 feet of sand, I found fragments of pottery along with the flint implements and bones, and also lumps of clay such as pottery would be made from, which leads me to believe that the fragments I have so frequently found are the remains, not of burial urns, but of vessels in daily use among the people of the stone age.

I have not yet had a professional opinion on the bones found with the other objects, but with regard to the human bones, I found them in two places—a heap, which has apparently been an entire skeleton, but now greatly broken up, at one place, and two single bones far removed from them. There was no dark layer where I found the heap of human bones, but I got horses' bones and teeth on the same level. One might readily suppose that the human bones were the remains of some drowned person cast on the shore in a storm, but I found among the heap three teeth having their crowns worn quite flat, which leads me to believe that the person had been accustomed to such gritty food as would likely be the fare of the dwellers among the sand-dunes, and that therefore he was probably one of the flint implement makers.

Col. A. LANE FOX made some observations on the paper and exhibitions.

The following paper was then read by the Director, in the absence of the Author.

CUSTOMS of the NEW CALEDONIAN WOMEN *belonging to the NANCASHY TINE, or STUART'S LAKE INDIANS, NATOTIN TINE, or BABINE'S and NANTLEY TINE, or FRASER LAKE TRIBES.* From information supplied by GAVIN HAMILTON, chief factor of the Hudson's Bay Company's service, who has been for many years among these Indians, both he and his wife speaking their languages fluently. Communicated by Dr. JOHN RAE.

GIRLS verging on maturity, that is when their breasts begin to form, take swans' feathers mixed with human hair and plait bands, which they tie round their wrists and ankles to secure long life. At this time they are careful that the dishes out of which they eat, are used by no other person, and wholly devoted to their own use; during this period they eat nothing but dog fish, and starvation *only* will drive them to eat either fresh fish or meat.

When their first periodical sickness comes on, they are fed by their mothers or nearest female relation by *themselves*, and on no account will they touch their food with their own hands. They are at this time also careful not to touch their heads with their hands, and keep a small stick to scratch their heads with.

They remain outside the lodge, all the time they are in this state, in a hut made for the purpose. During all this period they wear a skull-cap made of skin to fit very tight; this is never taken off until their first monthly sickness ceases; they also wear a strip of black paint about 1 inch wide across their eyes, and wear a fringe of shells, bones, &c., hanging down from their foreheads to below their eyes; and this is never taken off till the second monthly period arrives and ceases, when the nearest male relative makes a feast; after which she is considered a fully matured woman; but she has to refrain from eating anything fresh for one year after her first monthly sickness; she may however eat partridge, but it must be cooked in the crop of the bird to render it harmless. I would have thought it impossible to perform this feat had I not seen it done. The crop is blown out, and a small bent willow put round the mouth; it is then filled with water, and the meat being first minced up, put in also, then put on the fire and boiled till cooked.

Their reason for hanging fringes before their eyes, is to hinder any bad medicine man from harming them during this critical

period : they are very careful not to drink whilst facing a medicine man, and do so only when their backs are turned to him. All these habits are left off when the girl is a recognised woman, with the exception of their going out of the lodge and remaining in a hut, every time their periodical sickness comes on. This is a rigidly observed law with both single and married women.

When about to have a child, the woman is also expelled the lodge, and lives in a hut until thoroughly recovered, and is attended by *another woman when able to pay for such attendance*. This horrible custom causes many deaths, as a woman is often taken unexpectedly with no hut made, and then she must bring forth in the snow, perhaps in the dead of the night, and remain there until some humane person raises a shelter for mother and child. On her recovery she re-enters the lodge, but for a few days after if an Indian kill an animal, it must not be taken into the lodge through the door, but through the smoke-hole in the roof, and tail first, in order to dissipate any bad influence the newly recovered squaw may bring ; afterwards things resume their usual routine. No woman will ever eat lynx meat, as it assists to make them ugly and to hasten old age.*

LANGLEY LEGEND.—No. I.

In ancient times there lived a very bad and cruel man of extraordinary size, who ruled over every place and acted as he chose ; he was also a great medicine man. This chief held in bondage an Indian, to whom he was very cruel, never giving him any water, there being none on the earth but what this great chief had, and this was carefully kept in a large birch basket. During the absence of his master, the Indian stole and ran off with the basket of water, but was soon missed and pursued by his master. The Indian as he ran used to put his hand in the basket and spill the water along ; very often owing to the jolting, a large quantity would fall out ; he ran this way for a long time, until at last he was nearly overtaken ; he then upset all the remainder of the water, broke the basket in pieces and escaped. The great medicine man made the water thus last thrown out bad, and not fit to drink, thinking thereby to punish the Indian. The water sprinkled out with the hand formed the rivers, what was

* NOTE by DR J. RAE.—The lynx is rather a favourite food of the Indian, being *delicate eating*, and white like veal. Probably some medicine man has got up the story on purpose to deter women from eating it, as is done with the moose nose, the reindeer head, and certain parts of other animals and birds, which are tabooed to women.

spilt by jolting the lakes, and that last thrown out, the sea, made salt by the medicine man.

The broken basket drifted in pieces, and formed the islands visible from the mouth of the Fraser, namely Vancouver Island and others.

The Indian wandered about until eventually he settled on the Fraser River, and built his lodge. Feeling lonely, he took his canoe and went fishing, caught a sturgeon, and bringing it ashore, and with the aid of what he had learned from his old master, the great medicine man, changed the sturgeon into a woman, and thus began the Quaitlan or Fraser River Indians.

LANGLEY LEGEND.—No. II.

Many ages ago the Fraser River flooded its banks and covered the whole country with water, drowning every living thing that lived on the land, and this was caused by a very great medicine man. One of the Fraser River chiefs had a large war canoe, into which he went with his wives and family. After floating about for a long time, they found shore and landed. However, owing to all the deer, bears, &c., being drowned, they ran the risk of being obliged to go naked—plenty of food being obtained from the fish in the river. The Indian had in his possession a large variety of furs, so he took a bearskin and sewed up one of his wives (who was in the family way) in it, by which means she was changed into a bear. He did the same with another of his wives, only substituting a deerskin for the other. Not wishing to part with more of his wives in this unpleasant manner, he set his medicine wisdom to work to produce other animals on the earth. The only animals he could find were the beaver, otter, musk-rat, and mink.

Whilst drifting about in his canoe, he found a squirrel half drowned, which lived and had young. The squirrels became quickly numerous, and by coaxing and medicine he managed to pair the squirrels with the mink, producing a family of martens thereby. Then the marten paired with the otter, making the fisher; the fisher then cohabited with the bear and produced the wolverine, for which the Indian was very sorry, as he turned out such a bad animal. In this way he managed to stock the country with different animals, with the skins of which to clothe the Indians.

The following remarks were made by Dr. Messer, R.N. :—

On "AN INQUIRY into the REPUTED POISONOUS NATURE of the ARROWS of the SOUTH SEA ISLANDERS." Published by authority of, and communicated by, the Right Honourable the Lords Commissioners of the Admiralty.

THE recorded results of wounds by the arrows of the South Pacific Islanders, appearing to me inconsistent with the generally accepted belief that these weapons were poisoned, I was led during my visits to these islands, in 1865-6, to institute some inquiries as to the means used by the natives in preparing their arrows. All accounts stated that the wounds were followed by "*tetanus*" *after an interval of from five to ten days*; while it was generally asserted that the arrows were poisoned by immersion in a dead decomposing human body, or by smearing them with different vegetable juices.

If the first process were really adopted, we should expect to have heard of the well-known symptoms of *septicocima*, or blood poisoning, following; but as far as I was able to learn, no such symptoms had ever been observed after wounds by these weapons. The second process is certainly adopted by several savage races, as where Woorali, Coroval, &c., are used; but we know that none of these substances, or in fact that no other substance, will produce tetanus after a period of five or six days' incubation in the body.

During my second visit to these islands, I was suddenly afforded an opportunity of witnessing the effects of the arrows of Santa Cruz Island in seven cases of wounds by these weapons, on my own shipmates, two officers and five men; the result being that three of the wounded were attacked by tetanus on the fifth and sixth days, and died within seventy hours.

This enormous proportion of cases of fatal tetanus after most trivial wounds, seemed at first sight to point to poison as a very probable explanation of such an unusual result. I accordingly extended my investigations by means of a series of written questions addressed to the various missionaries and others resident among the different islands in the South West Pacific, from whom I obtained much interesting and valuable information, which is embodied in the two papers published in the "Statistical Reports of the Health of the Navy, for 1875 and 1876." It will there be seen that my informants, with one exception, declare that none of the natives poison their arrows by decomposing animal matter, and that the only animal part of a poisoned arrow is the point, which is almost always made of some portion of a human bone, simply for want of any better material in the islands. It would also appear that some of the natives place considerable

faith in the "*mana*" or supernatural power of the bone, especially if derived from some famous warrior or sorcerer. The stories generally current that arrows are poisoned by immersion in a decomposing human body, may be traced to the fact of visitors having seen dead bodies lying above ground for the purpose of obtaining the long bones, where the natives have informed them that they were for making arrows.

There seems to be no doubt that in many of the New Hebrides, Banks, and Santa Cruz islands, the natives smear their arrows with the juices of different plants, which they mostly believe to be poisonous. I have obtained samples of several of the substances prepared from the juices of several plants, the native names of which only I have learned; but the chief of the plants seems to be an *Euphorbium* named "*Loto*" or "*Natoto*." With two of the reputed poisons, and with four different arrows procured from as many different islands, I performed fifteen experiments on three dogs and two rabbits, and obtained results which although not quite conclusive, are yet such as to throw the gravest doubts on the poisonous nature of any of the articles used by the natives.

There also can be no doubt that most of the natives hold these weapons in great fear, and observe the greatest precautions in preparing and preserving them; at the same time there is much evidence to show that they also combine a large amount of superstition with their belief in the poison, and in this may perhaps be found an explanation of the frequency with which tetanus follows wounds by these weapons.

This disease is naturally very prevalent in hot climates, and especially among the black races; and we know that where terror, despondency, and other depressing mental influences are combined with wounds in such climates, it also frequently attacks white people. A firm belief then in the insidious and fatal nature of these poisoned arrows, will be naturally associated with much fear and morbid mental disturbance, even among white people, however well informed, but lacking definite medical knowledge, and will be most likely to induce a condition suitable for the development of tetanus.

My chief object in this inquiry has been to endeavour to dispel this belief in the poisons, and thereby minimise the risks of tetanus; for it is asserted by many missionaries and others, that this and other allied diseases of the nervous system, have become much less frequent among those islanders who have renounced superstition and have embraced Christianity.

Besides my own experiments, I may mention that Professor Busk, F.R.S., has analysed the substance found on an arrow from Mallicolo (New Hebrides group), without detecting any

tetanising ingredient. Professor Leveridge of Sydney University, has obtained an alkaloid from the substance used in Efaté Island (New Hebrides), which was innocuous to guinea pigs. Professor Halford of Melbourne University, has failed to produce any bad symptoms on dogs and rabbits with the same substances used by me. These gentlemen have all arrived at similar conclusions, viz., that the tetanus observed after wounds by these poisoned arrows, is the ordinary traumatic disease, and not the result of the poison on the arrows.

We may therefore, I think, in the meantime, be justified in looking upon these reputed poisons with the greatest doubt as to their potency. At the same time, it may be premature to state positively that none of the substances used by the South Pacific Islanders possess poisonous properties. But that these natives possess a poison that will produce a disease identical with traumatic tetanus, after an interval of five or ten days, and after only a short contact with the living body, is a fact yet to be proved.

The Director then read the following paper, in the absence of the Author.

The ETHNOLOGY of GERMANY, PART II.

The GERMANS of CÆSAR. By H. H. HOWORTH, Esq., F.S.A.

THE first Germans whom Cæsar encountered were the Germans ruled over by Ariovistus. His army was not a mere collection of warriors making a raid across the Rhine, but was apparently a migration of a whole people, consisting of six confederate tribes. Such migrations became frequent enough two or three centuries later, and had we sufficient information about the earlier period, we should doubtless find that they were common enough then also. They are not to be explained by a mere wanton habit of wandering. It is not for this cause that whole peoples desert their hearths, desert the homeland endeared to them as their birth-place, containing the sacred fanes of their gods and the graves of their ancestors. They moved because they were compelled to move, either by the pressure of physical circumstances or of more vigorous tribes; and it was doubtless one of such causes that set the people of Ariovistus in motion. As we shall see presently, the time at which he lived was marked by the aggressive advance of the great Suevic or Suabian race in central Germany; and just as this was the cause of the migration of the Tencteri, the Usipetes and the Ubii, so I believe it to have been the cause of the migration of Ariovistus and his people. The confederacy which he led con-

sisted of the tribes named Harudes, Marcomanni, Tribocci, Vangiones, Nemetes, Sedusii and Suevi. The Suevi doubtless forming only a contingent, being one of those contingents mentioned by Cæsar, which they were accustomed to send out annually for purposes of plunder.

The Harudes again were apparently no part of the original invaders. They came in afterwards, as Ariovistus himself told the Sequani (*vide infra*); we may therefore discard them for the present. The Suevi again belonged to another kingdom, they were merely a contingent of the main race in central Germany ruled over by Nasua and Cimber, as Cæsar says. (I, 37.) These also we may for the present discard.

We have left five tribes, the Marcomanni, Nemetes, Tribocci, Vangiones and Sedusii. The Marcomanni bear a name meaning originally Marchmen or Mercians, but applied by the classical authors just as the term Mercia was by our early chroniclers, in no generic sense, but specifically to the ancient inhabitants of Bohemia. They were, I believe, the ancestors of the modern Bavarians.

The Marcomanni formed a powerful empire in central Germany, which a few years later was ruled over by Maroboduus; and it is exceedingly unlikely that they should as a body have migrated at this time into Gaul, or that Ariovistus should have been their king. They doubtless, like the Suevi, furnished a contingent to the invading host, a posse of that warlike youth which was ever ready for an excursion if fighting and plunder might be expected.

We have left for consideration the tribes of the Nemetes, Tribocci, Vangiones and Sedusii. They were, I believe, the special subjects of Ariovistus, and the Germans proper of Cæsar's first book. Let us first say a few words about the name German. It is, in the first place, not a native name. The people of Germany called themselves Deutsch, and Grimm, Zeuss, and others are at one in urging that it is a name applied by outsiders to the people of Germany. In the next place, it is a generic name, applied not only to the people of the upper Rhine, but also to those of the lower Rhine. Thus Cæsar, speaking of certain tribes there, says the Condrusi, Eburones, Cæræsi, Poemani, who were collectively known as Germani (II, 4); and in another place he speaks of the Segni and the Condrusi of the race of the Germans. (VI, 32.) We find the name occurring also far from the Teutonic frontier of Gaul, and in fact on its opposite borders, for we read in Pliny of a tribe living on the Iberian frontier of Gaul called the Oretani, who he says were also called Germani. (Pliny, III, 3.) Ptolemy tells us their chief town was called Oretan Germanon. (Zeuss p. 59.)

We may go a step further, and in examining the neighbours of Gaul on the side of Germany, we shall find that the name German was not applied to them all, but only to a certain portion of them: thus Tacitus says, speaking of the people of the middle Rhine, "*Quidam ut in licencia vetustatis, plures deo ortos pluresque gentis appellationes Marsos, Gambrivios, Suevos, Vandilios affirmant eaque vera et antiqua nomina. Ceterum Germaniæ vocabulum recens et nuper additum, quoniam qui primi Rhenum transgressi Gallos expulerint ac nunc Tungri tunc Germani vocati eunt. Ita nationis nomen, non gentis evaluisse paulatim, ut omnes primum a victore ob metum mox a se ipsis invento nomine Germani vocarentur.*" (Tacitus, "Germ.," II.)

Again the term Germani is used in early times in a very loose way; indeed, so much so, that in a passage of Seneca, "consol. ad Helv.," VI, and others of Pliny, Par. 4, and Dio. 5, 3, 12, it was apparently applied to Celtic tribes.

Tacitus argues that the name was adopted by those who were styled Germans from their victories, "*ita nationis nomen, non gentis evaluisse paulatim, ut omnes primum a victori ob metum mox a se ipsis invento nomine Germani vocarentur*" ("Germ.," II); and it has been suggested that the name may be connected with such a word as guerre-man or war-man; but Zeuss, whose etymological instinct, and whose knowledge of Celtic and German was profound, disclaims a Teutonic explanation of the name, and says that the explanation of Tacitus, like the parallel explanations of the names Suevi and Vandilii, which he derives from the names of their gods, is not probable; and he argues with considerable force, that when Tacitus himself says that those who were formerly called Tungri, were named Germani after crossing the Rhine and coming in contact with the Celts, that he shows the name was adopted from their new neighbours, just as the Slavic tribes adopted the name Wends from their Teutonic neighbours. ("Die Deutsche," etc., 60.) Zeuss shows that if the name were connected with the French guerre, or the German wirre (confusion) or wehre, the old German weri or wari, the name ought to be Virromani or Varimanni, and not Germani (*id.*, 59, note); nor does he countenance the derivation from the old German man's name Germ, another form of Gorm or Guthrum, whence we have the local names Germenze or Germize in the Lorsch annals. (*Id.*)

Cæsar is the first author who uses the name for trans-Rhenane peoples; before his time its use was clearly very uncertain; thus Aristotle is quoted by Stephen of Byzantium as naming a tribe Germani, which he tells us was of Celtic race. (*Id.*, 60.)

In the *Fasti Capitolini*, a famous chronicle of Roman affairs, reaching from 120 A.U.C. to 765 A.U.C., we read, in the year

222 B.C., M. Claudius M.F., M. N. Marcellus, An. DXXXI Cos. de Galleis Insubribus et Germaneis K. Mart. isque spolia opi (ma) rettulit duce hostium Vir (domaro ad Cla) stid (ium interfecto) (Grævius, "Thes. Antt. Rom.," II, 227; Zeuss, *loc. cit.*) Polybius, who describes this event, speaks of the allies of the Insubres as Gaesati, and tells us they were mercenaries from the Rhone Valley. (*Id.*) The term Germani therefore here, as in the case of the Tungri, seems to be an appellative, and in this case perhaps applied to a Celtic tribe; for the names of its leaders, as given by Polybius, are, as Zeuss has shown, Celtic; they were, Kogkolitanos and Anerostes. On the other hand, it would seem that the upper part of the Rhone Valley was in early times occupied by certain tribes whose Teutonic affinities are not improbable, and whom we hope to treat of in a future paper. It is these tribes to whom Livy applies the term "semi-Germani." (21-38.) The burden of my argument is to show that the name Germani was not indigenous to the Teutonic tribes themselves. This view seems to be now held by all the best authorities. The most general notion among these same authorities is, that the name is of Celtic origin, and was given to the Teutonic peoples by their neighbours the Gauls. The term Celtic is in this case vague, and may include a good deal from the Romans themselves to the Belgæ. With this extension of the term Celtic, I am disposed to think that the view that the name Germani is of Celtic origin is a true one. That the name was the usual and ordinary name however given by the Gauls to their neighbours beyond the Rhine, I cannot so readily admit. The French name for Germany is Allemagne, and for Germans Les Allemands, and I have small doubt that these are old Gallic names for the country and the people, as I shall argue when we come to treat of the Allemanni.

What if the name Germani be Latin, and originated with the Romans themselves? *Germanus* is a very good and ancient Latin word, meaning brother, and Festus connects it with that Latin root which we have adopted into English in the word germ and germination; while the very word itself in its sense of close relationship is used constantly in the phrase cousin-german. Varro ap. Serv ad Virg. V, 412, explains Germani as meaning that the individuals answering to the description were sprung from the same genitrix. In the sense of brother or close relation the word is used by the earlier writers, such as Virgil, Cicero and Terence, and so essentially Latin is it, that it occurs in several puns, as for instance in regard to two consuls who had a mutual struggle. "De Germanis non de Gallis duo triumphant consules." (Velleius II, 67.) Cicero makes a similar joke about a Cimbrian who killed his brother, "Germanum Cimber occidit" ("Cic. ap

Quin." VIII, 3); and the authors of the great Latin lexicon of Facciolatti, argue that the name was applied to the people of Germany by the Romans, either because they called each other brothers, or because they deemed them so like in manners, &c., to the Gauls, that they styled them Germani, viz., brothers or relatives.

I am disposed to accept this view, and to conclude that the names Germani and Germania are of Roman origin.

I may add in a parenthesis, that the towns Germanicia in Commagene, and Germanicopolis in Paphlagonia, doubtless derived their names, as has been said, from Germanicus.

Having discussed the name German, let us now turn to the various tribes called German by Cæsar, and begin with the four already named who were the subjects of Ariovistus.

First in regard to the etymology of their names. Zeuss, whose tendency to make everything German is somewhat marked, allows that the name Tribocci is not Teutonic but Celtic. The particle tri is so essentially Celtic, that with pol and pen it has served as a shibboleth by which to mark Cornish names. It means place in Celtic (Latham, "Germania," 98); and we may adduce a series of Celtic names, such as Trecassi, Trinobantes, Treveri, etc., in which it occurs. The syllables Bocci or Bocchi may be compared with similar syllables in the name Teuto Bocchus, and the latter again with the Teutobodiaci of Pliny, a Gallic tribe of Asia Minor. Bocci or Bocchi I take to be a mere form of Boii, which occurs as Bogi and Bogii, and in composition as Tolistoboji or Tolistobogi (Zeuss, "Der Deutsche," etc., 181-182), all Gallic tribes; and this is much strengthened by the fact that on a stone found near Marbach the names Boii and Tribocci occur together. I have no hesitation therefore in affirming that the name Tribocci is a Celtic name, and one which connects the people more or less closely with the great Celtic tribe of the Boii.

The Nemetes also bear a name which is unquestionably Celtic; not only is the particle et, the Gallic plural, as Zeuss has shown (*op. cit.*, 220, note), but the name may be compared with such Celtic names as Drynemetum, Augustonemetum, Nemetacum, Nemetobrigas, Nemetati, Nementuri, Nemosus, Nemetocema, Nemavia, Vernemet (fanum ingens, Venant Fort, I, 9), Nimidæ (sacra silvarum, in Indic supers.); (Mehlis "Studien," 70), (Zeuss, 220, note). The names are in fact closely related to the Latin nemus, a wood, and Nemetes probably has a similar meaning to Catti, and means woodmen.

There is a general admission that these two names are Celtic in form. Zeuss claims the name Vangiones as German, mainly, I believe, because of its likeness to Vangio, the name of a king mentioned by Tacitus. It must be allowed that the names are

in fact the same, but Tacitus does not make Vangio a Suabian, as Zeuss says, (*op. cit.*, 219); Vannius was the king of the Quadi, and Vangio was the son-in-law of Vannius (Tacit. "Annals," XII, 63, XII, 29-30), and he perhaps founded the old city of Vania, called Bana by the Slaves, Banya by the Magyars, and Schemnitz by the Germans. That the Vangiones were closely connected with the Quadi I am very willing to believe, but this does not make them in my view necessarily Teutons. I believe they represent the old Celtic population of Bohemia; but to them I hope to return in another paper.

Of the Sedusii mentioned by Cæsar, we know nothing more from any other author, but the name may be compared with that of the Seduni, a tribe of Switzerland, which was no doubt Celtic.

It is curious that Tacitus in his account of the war which the Treviri carried on with the Romans, mentions as their allies the Vangiones, Cæracates, and Tribocci. This is apparently another curious instance of the different way in which the German tribes are described in the "Annals" and the "Germania," for it is exceedingly probable that these Cæracates, also spelt Cæratates, are the Nemetes already mentioned. Zeuss compares the name with the Celtic man's name Caractacus mentioned by Tacitus, and it may be further compared with that of the tribe Cerasi, to which I shall refer presently.

So far the philological evidence is clearly in favour of making the Germans of Ariovistus Celts rather than Teutons. But we have not yet done with our evidence. In the time of Ptolemy, the three tribes of the Tribocci, Nemetes and Vangiones were settled on the left bank of the Rhine in Alsace, and he gives us the names of certain towns within their borders whose etymology is also instructive.

Within the territory of the Nemetes, were the two towns of Noviomagus and Argentoraton. See Mehlis, *op. cit.*, 57-8, who reverses the usual reading of Ptolemy, which gives Noviomagus and Rufana to the Nemetes. Noviomagus was probably the modern Spire. (*Id.*, 64-5.) The name Spire in the form Sphira seems to occur first in the geographer of Ravenna. (Bachmeister, "Alem. Wand.," 25.)

The termination magus is purely Celtic, and meant field. (Mehlis, 59.) It occurs in the composition of many Celtic towns, as Brocomagus, Rigomagus, Durnomagus, Marcomagus, etc., etc., and in this sense may be compared with similarly constructed Teutonic names, as Königsfeld, Hirschfeld, Fürstenfeld, Zaberfeld and Rheinfeld.

The first particle of the name is common to the Western Arian languages, in the sense of new, and occurs in the Greek

Neapolis, the Russian Novgorod, the German Neustadt, the English New Minster, etc. The old Irish form of the particle is *nu*. (Bachmeister, "Alem. Wand.," 12, note.)

Argentoratum, called Argentaria by the Geographer of Ravenna, is also a Celtic gloss, meaning the silver town. The last syllable being the well known Irish word *rath*, meaning a town. (Mehlis, *op. cit.*, 65.) It is called Argentaria, and also Strasburgum by the geographer of Ravenna, and is doubtless to be identified with Strasburg, the Stratisburg, or town on the Roman road. (Mehlis, 65; Bachmeister, "Keltische Briefe," 121.)

Silver in Irish is *arget*, in Welsh *aryant*, in Cornish *argans*, and in Armorican *argant*; and we have another town compounded with it within the borders of Gaul, in Argentomagus, the modern Argenton (Bachmeister, *id.*, 120); while the second syllable occurs in the Gallic names Rate, Ratomagus, Barderate, and Corterate. (*Id.*, 59.)

Among the Vangiones were the two towns of Rufiana and Borbetomagus. Rufiana is held by Mehlis ("Studien," 62) to be a distinctly Celtic gloss, derived from the Celtic word *rufus*, a wolf; and he fixes its site with great probability at the ruins, partially of Roman origin, situated not far from Neustadt, and known as Wolfsburg, which name is a mere translation of the Celtic name. With the other towns on the Upper Rhine Rufiana was destroyed by the Alemanni. It was again occupied, and received the name of Neustadt, which became a walled town in the beginning of the thirteenth century. (Mehlis, *op. cit.*, 62-63.)

Borbetomagus is a distinctly Celtic gloss of the same form as the Noviomagus which we have already discussed. It is now represented by the city of Worms, which is often in old documents called Wormaz-felda, Wormaz-feld, a mere translation of the Celtic name. (Mehlis, *op. cit.*, 59.) The first part of the word is probably derived from the River Pfrimm. (*Id.*)

Among the Tribocci Ptolemy mentions the towns of Brenkomagus and Elkebos.

Brenkomagus, like Noviomagus and Borbetomagus, is an undisputed Celtic gloss. The town is now represented by Brumt in Alsace, which in mediæval documents is named Brocmagad, Bruchmagat, Brumagad, and Bruomad. (Bachmeister, "Kelt. Briefe," 58.) A Bromagus (? Viromagus) occurs in the Celtic area of Switzerland. (Bachmeister, "Alem. Wand.," 23.)

Bachmeister connects the first syllable of Elkebos with the River Ill, a Celtic rivername which occurs in Ptolemy under the form *Ila* in Britain ("Kelt. Briefe," 117), but this seems somewhat doubtful, and I do not see my way to a Celtic explanation of the name.

Let us now examine the account of the campaign of Ariovistus given by Cæsar. The country between the Jura and the Saône was occupied by the Sequani. Beyond the Saône was the land of the Ædui. Between the two tribes an old jealousy had existed; the Ædui, who were the *protégés* of the Romans, lorded it somewhat over their neighbours, and there was also a quarrel about the tolls on the River Saône. (Long's "Cæsar," 34.)

The Sequani allied themselves with the Arverni, and also with the Germans, who we are told at first crossed the River Rhine to the number of about 15,000. They speedily occupied the country, however, with a body numbering 120,000. The Ædui and their clients were terribly beaten, and lost all their nobles, their senate and their knights, and were compelled to give hostages to their rivals the Sequani. (Cæsar, I, 3.)

As Grimm points out, this passage shows that Ariovistus and his people came from the country of the Upper Rhine, since they were called in by the Sequani. ("Geschichte der Deutsch. Sprach." 345.)

The country of the Sequani was bounded by the Saône, the Rhone, the Jura and the Rhine. It comprised therefore the southern part of Elsass or the Suntgau on the Rhine, Franche Comté, part of Bourgogne and Brene, or the following departments, part of Haut Rhin, Haute Saône, Doubs, Jura, Aix, and part of Saône et Loire. (Long's "Cæsar," '72, note.) Divitiacus, entitled Vergobretus, the head of the Ædui, now repaired to Rome to ask assistance there for his countrymen, and there he met and had intercourse with Cicero. (*Id.*, 34.) Meanwhile the Sequani had speedy reason for repenting. Ariovistus demanded one third of their country for his people to settle in; and afterwards on the plea that he had only a few months before been joined by a body of 24,000 Harudes, who needed homes, he asked for another third of their country. When this was refused, he fought a terrible battle at Magetobria, where having vanquished the enemy, he ruled them in a cruel and harsh manner. (Cæsar, etc., I, 31.) These facts were told Cæsar, and we are also given in this same chapter an explanation of the attempted migration of the Helvetii, which had been prevented by Cæsar himself, namely, that they were afraid of the *German* invasion, and wished to move farther away.

Cæsar sent envoys to Ariovistus, and communications passed between them, in which the German chief by no means shows to disadvantage. Meanwhile envoys went to Cæsar from the Ædui complaining that the Harudes had already entered their borders, that is, had advanced beyond the Saône. Cæsar marched in all haste to prevent Ariovistus being reinforced by

the remaining Suevi, who were threatening to cross the Rhine into the land of the Treviri. When he approached the camp of the German chief, he sent him messengers, asking him to withdraw once more into his own country. He replied that he had not crossed the Rhine to please himself, but at the request of the Gauls, nor had he left home without severe sacrifices, etc., etc.; and he declined to go. The fight accordingly proceeded and eventually the Germans were terribly beaten; the battle in all probability being fought near Basle. A fearful slaughter followed, only a few escaping, among them being Ariovistus himself, who crossed the river in a small boat. We are told he had two wives, one a Suevan or Suabian, whom he had married at home, the other a Norican, the sister of Voctio, the king of Noricum, who was sent to him, and whom he married after he entered Gaul. Both perished in the flight. Of his two daughters, one was killed and the other captured. When the news of this battle was reported beyond the Rhine, the Suevi, who had advanced as far as, and were threatening to cross over the river, returned homewards, and many of them were killed by the Ubii. (Long's "Cæsar," I, 54, note.) As Druman says, the question whether Gallia should be a German or a Roman province, was decided for some centuries by the campaign of B.C. 58. (Long, *id.*, 100, note.)

Let us now turn our attention once more to the immediate problem before us. Cæsar tells us that the Rhine divided the Helvetii from the Germans. (I, 2.) He also tells us in another place, that the Helvetii were like the Belgæ, braver than the other Gauls, inasmuch as they were engaged in constant struggles with the Germans. (I, 1.)

This proves that the country of Cæsar's Germans was in close proximity to the Helvetians, and in fact divided from them only by the Rhine; and as I have said, the country meant was evidently the country opposite the Sequani on the Upper Rhine; that is the modern Grand Duchy of Baden, once thickly planted with dark woods, the well known Schwarzwald of the maps.

The inhabitants of these woods and of this country I believe to have been the Nemetes or woodmen, and thus I explain the statement of Cæsar that the Hercynian forest commenced from the borders of the Helvetii, Nemetes, and Rauraci. "*Oritur ab Helvetiorum et Nemetum et Rauracorum finibus.*" (*Op. cit.*, VI, 25.) I agree with the argument of Mehlis (*op. cit.* 39), that Cæsar here implies that the Nemetes occupied the right bank of the Rhine; I therefore take the Duchy of Baden to be the old land of the Nemetes.

In regard to the Tribocci, who I have argued were a section of the Boii, I have already quoted the fact that an altar was

found at Marbach, with their name inscribed upon it (Zeuss, *op. cit.*, 121, note); I may add further, that Tacitus tells us in his "Germania" "that between the Hercynian Wood, the Maine, and the Rhine, there formerly dwelt the Helvetii and the Boii, both Gallic tribes." "Igitur inter Hercyniam silvam Rhenumque et Manum amnes, Helvetii ulteriora Boii Gallica utraque gens tenuere." (*Op. cit.*, VI, 25.)

This country then, the modern Würtemberg, may well have been the land of the Tribocci. The Vangiones, perhaps, lived further east in Bavaria.

The country beyond the Rhine comprised in the modern districts of Baden and Würtemberg, was largely comprised in the ancient territory known to the Romans as the Agri Decumates. The migration of the Nemetes and their two related tribes to the west of the Rhine, apparently left this district vacant, and it acquired the name of the Helvetic waste, by which name it was known to Ptolemy.

It was occupied eventually by adventurers from Gaul. (Tacitus, "Germania," xxix.) These settlers from paying tithes or tenths were styled Decumates. Cicero says all the soil of Sicily was decuman. "Omnis ager Siciliæ decumanus est." (Murphy's "Tacitus" VII, 308.) And Gibbon tells us that to protect these new subjects a line of frontier garrisons was gradually extended from the Rhine to the Danube. (*Op. cit.*, II, 46.) Niebuhr suggests that the existence of a place called Aræ Flaviæ on the military road from the Maine to Augsburg, proves that probably under Domitian the Romans had already taken possession of that "sinus imperii," and adds in a note, that Frontinus ("Strateg.," I, 3, 10) expressly describes the construction of the limes Romanus to Domitian. (Latham "Germania of Tacitus," 163.) This limes or fortified ditch extended from Neustadt on the Danube as far as Wimpfen on the Neckar, and on to the Rhine. There are still remains of this work between the bend of the Neckar and the upper part of the Altmühl in the neighbourhood of Ohringen. They can be again traced on the upper Altmühl, and re-appear on the Danube between Pforing and Kelheim. It is called the Teufel's Mauer or Devil's wall. (*Id.*, 104; Gibbon II, 46-77.)

This was long the great frontier rampart against the barbarians to the east and north. Tacitus tells us, as I have said, that it was settled by Gauls.

But we may go further. The land beyond the Rhine was an old Gallic land, according to the information collected by Cæsar. He tells us that the districts about the Hercynian forest, which were the most fertile, and whose fame was known to Eratosthenes and the Greeks, and which they called Orcynia, were occupied and settled by the Volcæ Tectosages, who, he tells us,

still occupied this country in his day, and being surrounded with the same hard circumstances as the Germans, also emulated their martial qualities. (*Op. cit.*, VI, 2.) He argues that these Gauls were colonists who had crossed the Rhine; we, on the other hand, have good reasons for believing that, like the broken remnants of the Boii, &c., they were the original inhabitants of the South German area, and hold that the Volcæ Tectosages, who lived in Gaul itself, about Toulouse, were colonists from the other side of the Rhine. These latter seem to have had close relations with the Cimbri and Teutones of earlier times. (See Long's "Cæsar;" introduction, 30.) The presence of these Gauls in the Hercynian Forest in Cæsar's day, and the short mention of the Boii there which I have quoted from Tacitus, increases the probability that the Germans who lay between them and the Rhine in Baden, were partially of the Celtic stock, and not a pure Teutonic race, and were at least very different from the Teutonic Suevi of later days.

We have not yet exhausted the evidence pointing in the same direction.

Thus we are told by Cæsar, that he chose envoys to go to Ariovistus, who knew the Gallic tongue, "*qua multa*," he adds "*jam Ariovistus longinqua consuetudine utebatur*." (I, 47.) These words are assuredly intelligible enough, if we consider Ariovistus as the king of a nation bordering closely on Gaul, and having close relations with it, but entirely incredible if we apply them to some leader of Suevic or true Teutonic blood, who would deem the language of the indigenes an unworthy object of attention.

It may be remarked as at least curious, that that not very accurate writer, Dion Cassius, makes Ariovistus a chief of the Allobroges, and calls his people Celtæ.

Again, of the two wives of Ariovistus, one was a Suebian, whom he married at home. The Suebians would be the next neighbours to his people south of the Maine. The other was a Norican princess; surely an improbable alliance for a chief of fierce Germans to make, not as the reward of some victory, but to be sent to him by her brother, when he, Ariovistus, was in Gaul; but most consistent if he was the chief of the border tribes of Vindelicia and Noricum, whose affinities were Celtic.

Lastly, we have the name Ariovistus; surely not a German name of the type of which we have an immense number of those chiefs who led the various invaders and enemies of the Roman Empire from Arminius to Charles the Great, but a name to be compared with a Celtic tribal name like Aravisci, and a Celtic place like Ariolica, the modern Pont Arlier in Switzerland.

I remember also reading somewhere of a Gallic chief, Beri-

bistes, the form of whose name is singularly like Ariovistes, but I have mislaid my reference. For these various reasons, and, I take it, they far outweigh what may be urged on the other side, I cannot avoid the tentative conclusion that the Nemetes, Tribocci, and Vangiones were not of purely Teutonic origin, but more or less quasi Celtic.

Let us complete our account of them. Ariovistus seems to have only survived his defeat a short time. His death is mentioned in Cæsar's Fifth book, chapter xxix, which describes the events of the year B.C. 54.

When the army of Ariovistus was defeated, it would seem that the whole of his forces were not driven across the Rhine. A portion of the Tribocci at least remained behind; for he tells us in describing the course of the Rhine that it flowed through the territory of the Nantuates, the Helvetii, the Sequani, Mediomatrici, Tribocci, and Treviri. (*Op. cit.*, IV, 10.)

Here therefore he names the Tribocci between the Mediomatrici and Treviri. Long argues that the Mediomatrici originally held all the country between the Vosges and the Rhine, but were to some extent displaced by the invasion of the Tribocci, whose northern limit he fixes near Strasburg, and their southern one probably at Artzenheim near Markolsheim. (*Op. cit.*, 187, note.)

The next author who mentions the three tribes of whom we are writing, was Strabo, who was probably born about 60 B.C., and died A.D., 24. He probably wrote his "Geography" about A.D. 20 (Bohn's translation, preface iii, 1), and he tells us, "After the Helvetii, the Sequani and the Mediomatrici dwell along the Rhine, among whom are the Tribocci, a German nation, who emigrated from their country hither . . . After the Mediomatrici and Tribocci, the Treviri inhabit along the Rhine." (*Id.*, i, 288-289.)

Strabo does not name either the Nemetes or Vangiones, and unless the name Tribocci is used generically to include both those tribes, it would seem that they had not crossed the Rhine when he wrote.

Pliny is the next author who names them, and he mentions all three of them as German tribes living on the Rhine. (Pliny, IV, 17). This is what Tacitus in fact says. In contrasting them with certain quasi Germanic Gauls, he adds, "Ipsam ripam Rheni haud dubie Germanorum populi colunt Vangiones, Tribocci, Nemetes." ("Germania," XXVIII.) Ptolemy enables us to fix their sites by naming their chief towns, whose nomenclature we have already discussed. In addition to what I then said, I may add that Worms is made the chief town of the Vangiones by Amianus Marcellinus, and in the "Notitia." (Zeuss, 219.)

The three tribes were henceforth comprised in the Roman province of Germania Prima, and became to all intents and purposes Roman citizens. Like the rest of the inhabitants of Gaul, they apparently became docile provincials of the Empire. This fact again militates against their having been real Teutons. Lastly, we may conclude with tolerable certainty that the greater part of the Teutonic inhabitants of the modern Elsass are descended not from them, but from the Alemanni.

Let us now consider some of the other tribes to whom Cæsar applied the designation of German, and begin with the northern confederacy of five tribes. We are told of the Eburones and Condrusi that they were clients of the Treviri (Cæsar, IV, 6), who did not differ much from the Germans in culture, &c. The Treviri were famous for their cavalry. (*Id.*, II, 24.) The interesting fact to us is that the Eburones and Condrusi were their clients. Clients, that is, of a Belgic tribe, and the greater part of the Eburones lived between the Rhine and the Maas (Cæsar, V. 24), and were the next neighbours of the Menapii. (*Id.*, VI, 5.) The modern towns of Tongres and Spa are within their borders. Their chief town was Aduatuca, the modern Tongres, showing that they were intruders into the country, from which they displaced the Aduatuci, their western neighbours. (*Id.*, V, 38; Zeuss, 213.) They were the most famous of the five tribes we are now dealing with. Their name is not of German etymology, but Celtic. It may be compared with that of the Aulerci *Ebuovices*, who gave their names to Evreux, etc. The names of the two chiefs of the Eburones who fought against Cæsar, namely Ambiorix and Cattivolcus, are, as Zeuss says, unquestionably Celtic. (Zeuss, 212, note.) Between the Eburones and the Treviri were the two tribes Segni and Condrusi. (Cæsar, LXI, 32.) The Segni were the Sinuci of Pliny; their name, as Long says, is probably preserved in the little town of Sinei or Signei, in the county of Namur. (Cæsar, 128, note.) The name of the Condrusi is no doubt preserved in that of the strip of country south of the Maas, and stretching from Namur towards Lüttich, which is still called Condroz and le Condros, the Pagus Condrosius, Condruscus, Condrust, Condorusts of mediæval times. (Zeuss, 213.) The Pœmanni doubtless gave its name to the district of Famen, the Pagus Falmenna, and Pagus Falmenensis of mediæval writers. (Zeuss, 213; Long, *op. cit.*, 182, note.)

Lastly, the adjoining district, formerly called the Pagus Carascus or Carascus, took its name from the Cæræsi. (Zeuss, 213.) The important thing for us however to notice, is that these names, so far as we can see, are all Celtic, and none of them German. This is admitted by the most exacting of German Ethnologists, Zeuss. The name Segni may be compared with

the Celtic names Segontiaci, Segovellanni, Segovii, Segugini, and Segusiani.

The first particle of Condrusi may be compared, as Zeuss says, with the Con in Conbennones, and Consuanetes, while the second half of the name is clearly Celtic. Speaking of the name Drusus, Cicero says, "Pronepos est Drusi qui primus cognomen hoc ab interfecto Druso, Gallorum duce, tulit." (Cic. "Brut," 28.) Ceresium and Ciresium occur as names of Gallic places (Zeuss, 212), and may be accepted as traces of the Cæræsi. Lastly, the manni in Poemanni, as I shall show afterwards, has claims to be a Celtic gloss.

We thus find that such evidence as we can adduce makes the most northern Germani of Cæsar if not pure Celts, as they clearly were not, at least considerably affected with Celtic affinities.

Cæsar first came into conflict with the Eburones in B.C. 54. We are told by him that he planted a legion and five cohorts in winter quarters in the country of the Eburones, who for the most part lived between the Maas and the Rhine, and were ruled by Ambiorix and Cativolcus. These troops were commanded by Q. Titutrius Sabinus and Lucius Aurunculeius Cotta. (*Op. cit.*, V, 24.) The two chiefs of the Eburones were induced by Indutomar, the chief of the Treviri, whose clients they were, to attack the Roman camp. They were badly beaten, upon which they asked for a parley, at which Ambiorix addressed the Romans, and said that what had been done had been against his wish and advice; he having special reasons to be grateful to Cæsar for having relieved them from the tribute they had formerly to pay to the Aduatuci, and for having liberated his son and nephew who were detained by the Aduatuci as hostages. The cause of the strife was the policy of the Gauls, which was to have a perpetual feud with the Romans, and to attack separate legions or otherwise, and that it was impossible for one tribe to stand out against the common policy. He also warned them that they might be joined by a large contingent of Germans from beyond the Rhine. (*Id.*, V, 2.) The Eburones were evidently a weak tribe, and are referred to as "civitatem ignobilem atque humilem Eburonum." (*Id.*, 28.) The Romans having held a council, determined to retire from the country of the Eburones, but on their way through the woods they were attacked and terribly cut to pieces; a portion only returning in safety to their camp. The two commanders perished. (*Id.*, 36-37.) Ambiorix now marched into the country of the Aduatuci and Nervii, and urged them to a common action against the Romans. Envoys were also sent to summon the Centrones, Grudij, Lævaci, Pleumoxi, and Geiduni, who were subjects of the Nervii. The confederates marched to attack the winter

quarters of Cicero, which they assaulted night and day. Presently the Nervii made overtures to Cicero, but it was not the Roman habit to make any terms with an armed enemy. (*Id.*, 41.) They accordingly determined to hem him in, and built a huge ditch 15 feet wide, and a vallum 9 feet high, so as to enclose him and his army. On the seventh day of the siege they fired the camp by means of burning missiles. They then attempted an assault, but were repulsed with loss. But things were growing desperate, and the Romans sent letters to Cæsar; these were carried by a Nervian named Verticus. When Cæsar received the news, he immediately sent word to Labienus to march into the country of the Nervii; C. Fabius to enter that of the Atrebatæ, and M. Crassus to march against the Bellovaci, while he himself marched quickly to join Labienus. He sent letters to Cicero, written in Greek, so that they might not be of service to the enemy if waylaid. The confederated tribes having heard of Cæsar's advance, now marched to oppose him. He defeated them in a serious struggle, and speedily released his lieutenant. (*Id.*, 51-52.) Meanwhile the Treviri were badly beaten, and their chief Indutiomarus was killed. Ambiorix now became the head of the Gallic confederacy, and in B.C. 53, he summoned to arms the Nervii, Aduatuci, Menapii, and the Cis-Rhenane Germans, *i.e.*, the Eburones, etc. Cæsar entered the country of the Nervii with four legions, with which he ravaged their lands and exacted hostages; he then returned. Ambiorix found shelter among the Menapii, while the Treviri summoned the Trans-Rhenane Germans to their help. Cæsar compelled the Menapii to submit and to give hostages. Labienus at the same time marched against and defeated the Treviri, while the Germans who had gone to their assistance went home again, *i.e.*, crossed the Rhine (6, 7); and Cæsar having himself marched into the land of the Treviri, determined to cross the Rhine to punish the Germans who had assisted the Treviri, and to prevent Ambiorix from taking shelter among them. (*Id.*, 9.)

The latter was again among his own people, and Cæsar having made a demonstration across the Rhine, did not fail to pursue him; and he sent on L. Minucus Basilus with the cavalry to penetrate the Ardennes. The people of Ambiorix were surprised, and by his advice some were sheltered in the marshes, and others in the woods and the islands on the coast. Cativolcus, the joint chief with Ambiorix, who was too old to work, fight, or fly, having cursed his colleague for bringing so much misery on his country, poisoned himself. (*Id.*, VI, 3.) The Segni and Condrusi now sent envoys to Cæsar, praying him not to confound them with the other Cis-Rhenane Germans, with whom they had not taken part in the recent war. He sent orders to them not to

give asylum to the Eburones if they wished to be spared, and having collected all his forces he marched upon Aduataca, the capital of the Eburones, and almost in the middle of their country. He divided his army into three sections. One he sent under Labienus northwards against the Menapii; another under C. Trebonius to ravage the country of the Aduatuci; while he with the rest marched towards the Sambre, where Ambiorix had taken refuge. There were no fortresses or towns to capture, and the people were everywhere scattered and apparently almost destroyed; the neighbouring tribes were summoned to plunder and spoil the Eburones, a work in which the Germans beyond the Rhine were eager enough to join; and we read that 2,000 Sigambri joined in harrying their relatives the Eburones. They crossed the Rhine in rafts and boats 30 miles below the bridge; they captured a large number of cattle, and intercepted many of the fugitives. Learning that Cæsar was some distance away with his legions, and had left but a poor garrison behind at Aduataca, they determined to surprise that station, and to capture the booty there collected. They deposited what they had themselves secured in a wood, and then proceeded to besiege the fortress; but they failed to capture it after a brave attempt, and accordingly withdrew with their booty. On Cæsar's return, he proceeded systematically to ravage the country; all the villages and houses he could find were burnt, their cattle were driven off; their corn was consumed by the men and beasts, and laid by the rains, so that if any of the enemy had concealed themselves they must have died of hunger when the Roman army was withdrawn. Ambiorix himself was pursued from hiding-place to hiding-place with the greatest pertinacity. The hunters took prisoners who reported they had just seen the king; but it was all in vain. He eluded their grasp, and with an escort of but four men, managed to escape from marsh to forest and forest to marsh, and finally to get away. (*Op. cit.*, VI.)

Two years later, namely in B.C. 51, disappointed apparently at not being able to catch his prey, Cæsar having once more entered the territory of Ambiorix, ravaged what remained mercilessly in all directions, slaughtering a great number of the inhabitants. (VIII, 24-25).

Long compares this terrible campaign of Cæsar's with those of Europeans against African savages and Indian rebels. It seems to have well nigh, if not completely, exterminated the Eburones, who now disappear from history, and Cæsar thus revenged the slaughter of his men and the treachery of the Germans. (*Op. cit.*, note to chapter xliii, Book VI.)

The Eburones disappear from history, as I have said, and were

replaced by the Tungri. The mention of the Tungri carries us across the Rhine, where we have some other of Cæsar's Germans to consider.

Immediately north of the Maine were the Ubii.

The Ubii are first mentioned by Cæsar in the year B.C. 55. He tells us they were the next neighbours to the Suevi, who bounded them on one side; he describes them as forming a large and flourishing nation, as it were the head of the Germans. (*caput Germanorum.*) They bordered on the Rhine, and were consequently more cultivated than the other Germans, being nearer to Gaul, and more visited by traders. They had been much harassed by the Suevi, who, although they had not succeeded in expelling them from their country, had yet made them tributary. (*Op. cit.*, IV, 3.) They applied accordingly to Cæsar to send them assistance. (*Id.* 16.) When Cæsar made his famous bridge cross the Rhine, one end of it was placed in the country of the friendly Ubii. (Long's "Cæsar," 18 note.) North of them were the Sigambri, another German tribe. (*Id.* 18.) Cæsar, having crossed the river, liberated the Ubii from their dependence on the Suevi, and promised them assistance. (*Id.* 12.)

The land of the Ubii was situated opposite to that of the Treviri, and probably extended from the Maine in the south, to the borders of the Sigambri, in the north.

The Ubii also migrated to the west of the Rhine, thus imitating the example of the three tribes we have described. Strabo tells us they were moved across the Rhine by Agrippa with their own consent. (Book IV, chapter iii, §. 44.) Tacitus also mentions this migration both in the "Annals" and the "Germania." In the former he tells us that, having crossed the Rhine, they did allegiance to Agrippa, the grandfather of Agrippina. ("Annales" xii, 27.) In the "Germania" he tells us they were transferred across the Rhine *ut arcerent, non ut custodirentur.* (*Op. cit.*, xxviii.) Agrippina, the daughter of Germanicus, having been born in their chief town, it was made a Roman colonia, and named after her, Colonia Agrippinensis, now the famous city of Cologne, while the Ubii were styled Agrippinenses. (Zeuss, 88.)

They stretched northwards as far the Ardennes, and their frontier town was Gelduba (the modern village of Geldub, near Kaiserswert); another of their towns was Tolbiacum (Zulpich). (Zeuss, 88.)

Their close alliance with the Romans, and antagonism to the Suevi, and the close relations they apparently had with the Treviri, point to their having had other than purely Teutonic affinities. Their name seems to me to be a distinctly Celtic gloss, and to be the same word forming the second element in the names Danubius, Mandubii, Esubii, Gelduba, Abnoba.

Cæsar seems to use the name generically, and his phrase "*fuit civitas ampla atque florens*," shows that the Ubii, in his mind, were a very important race. Nor is it likely that, being so, they should have all been transferred across the Rhine and been comprised in the Roman colonia. It must be remarked also, as Zeuss has pointed out, that when they migrated across the Rhine, they occupied seats to the north of their former territory. On these grounds, I am disposed to believe that only a section of the race migrated westward, and that the rest remained behind under some other name. This section I am disposed to identify with the Catti or Chatti, a famous generic name of tribes occupying the old land of the Ubii and the country further east, of whom the Mattiaci were probably a section. I hope to revert to these Catti in a future paper. Here I would merely remark on the fact, that the name is apparently Celtic. The difficulty of explaining it from German sources is shown by the curious etymology of Leibnitz, who would derive it from cat, the race being so called because of its agility. I believe, on the contrary, that it is derived from the Celtic coit, a wood, and that, like Kherusci, it means merely the woodmen.

The mention of the Catti leads us naturally to say a word or two about the Batavi, who lived in Cæsar's time on the island formed by the Rhine and the Waal, and which was known as the "*insula Batavorum*." Tacitus tells us they were a section of the Catti who had migrated after a domestic feud ("*Germania*," xxix.) As they are named specifically by Cæsar, it is clear that this migration had taken place when he wrote. It is further clear that the Catti, although not mentioned by him *eo nomine*, were then existent in Germany. The fact of his not naming them has given rise to many surmises, among others the most popular is that they were the same people whom he names Suevi.

To this I altogether demur. The Suevi were a very distinct section of the Teutonic race, nor do we find any trace of Suevic occupancy on the Lower Rhine. In favour of their being connected with the Ubii, I may mention that the name Batavi was preserved in the Gau name Batua, and the two districts of Over and Nether Betuwe, and that the ua or uwe of these names seems distinctly connected with the name Ubii. Again, within the territory of the Ubii was the modern district of Nassau or Nassavi, a name formed on the same principle, and whose latter portion is identical with the latter portion of Batavi. I may add that the ancient *Danubius* has become *Donau* in modern German, as Nassavi or Nassuvi has become Nassau. Again, between the land of the ancient Ubii and the island of the Batavians, we find a tribe bordering on the Rhine

called Hattuarii, *i.e.*, Hat-were, or the people of the Catti. We also find Batti and Subatti in the old Ubian territory, and a place called Battenburg, on the Eder.

These facts make me inclined to identify very closely the Ubii with the Catti. The Batavi, as I have said, were a section of the Catti. The curious fact I wish to draw your attention to is, that the towns which we know to have been planted among the Batavi bore distinctly Celtic names. Thus we have Lugdunum, the modern Leyden, which bore the same name as the capital of the Provincia, the modern Lyons; Trajectum, the modern Utrecht and Batavodurum, whose termination *durum* is most characteristically Celtic.

One section of the Batavi is called Canninefates, a name very unlike Teutonic names, but singularly in form like Atrebatas; and although it is the fashion to give Betuwe a Teutonic etymology, and to explain it as the good land, there are others who would explain it as a Celtic gloss.

It is a curious fact about the Batavi, that they were so faithful to their Roman allies; we find their contingents serving constantly in the Roman armies, and they are called "*fratres et amici*" in Roman inscriptions. (Zeuss, 103.) This fact also militates against their being of purely Teutonic descent.

Let us now turn to two other tribes who occupy a considerable place in Cæsar's narrative, namely the Usipetes and Tencteri, both of whom he describes as Germans, and as driven forward by attacks of the Suevi.

The name Usipetes has a distinctly Celtic termination, like Nemetes. This is the plural particle *et*. Zeuss long ago pointed this out, and the name divested of this becomes simply Usipii or Uispîi. It survives undoubtedly, as Grimm has suggested, in the modern name Wiesbaden; Tencteri resembles in its termination Bructeri, in each case *eri* being qualifying pendants to the names; the former of which occurs at Tungri, whence Tongres, and the latter as Brocmanni. Sections of both tribes are placed by Ptolemy in the country of the Ubii or its borders, and it is very probable that they formed a portion of the same race.

Cæsar tells us that the Usipetes, and also the Tencteri, having been for many years molested and attacked by the Suevi, were at length driven from their country, and having wandered about in various places in Germany for a space of three years, came to that part of the Rhine inhabited by the Menapii, and not far from where the river falls into the sea, (Cæsar, VI, 1-4.) This was in the year B.C. 56.

The Menapii who occupied both banks of the river, transferred their people to the left bank, and posted guards to prevent the

fugitives from crossing. As they had no boats the latter were constrained to return once more to the south. (*Id.*, IV.) The Menapii having returned to their homes on the right bank of the river, the Tencteri and Usipetes returned again quickly and surprised them, and seized their boats, with which they crossed the river. (*Id.*) At this time therefore it would appear that the Batavian island was occupied by the Menapii. Presently the fugitives advanced still further on the west of the Rhine, into the country of the Eburones and Condrusi, and as far as the borders of the Treviri. Their envoys told Cæsar how they had been driven from their homes, and asked him to give them fresh fields to settle in, or to grant them those which they already occupied. Cæsar refused the request, but said he did not object to their passing over into the country of the Ubii, from whom envoys had also gone to him to complain of the attacks of the Suevi. As the Ubi would not consent to this, they had sent a portion of their cavalry across the Maas to forage. Cæsar attacked the remaining portion of their army, defeated them, and drove them to the confluence of the Rhine and Maas, where they were destroyed. That section which had crossed the Maas on hearing of this, hastened eastwards and crossed the Rhine into the land of the Sigambri, with whom they allied themselves. (*Id.*, VI, 16.) Cæsar sent to demand their surrender, but they replied that the Roman dominion stopped at the Rhine, and that the Romans had no rights on the other bank. (16.) Cæsar was not to be thus bearded; he constructed the well-known bridge across the river, and appeared in the country of the Sigambri. The latter meanwhile had persuaded their dangerous guests the Tencteri and Usipetes to leave their land, and to seek shelter in the forests and wastes. (*Id.*, 18.) Having spent a few days in their country and ravaged it, Cæsar passed into that of the Ubii, to whom he promised succour if they should be molested by the Suevi. The latter, who had heard of Cæsar's campaign, ordered a general evacuation of their settlements; arranged that their wives and children should take refuge in the woods, and that their young men capable of bearing arms should assemble in one place to await and repel the Roman attack. But he returned in a few days back into Gaul; having accomplished what he wished, namely, the punishment of the Sigambri, the freeing of the Ubii from their vassalage, and the making of a display of his power to the Germans. (*Id.*, 19.)

From this account we gather two important facts; first, that the Usipetes and Tencteri were closely related to the Sigambri; and secondly, that they settled down in the country east of the Rhine, and in close neighbourhood to that tribe. I have small doubt that only a predatory force crossed the Rhine into the

country of the Menapii, and that the main body of the nation remained and settled down in the various districts of Holland.

For the next notice we have of the movement of these tribes, we are indebted to a late writer, namely Procopius, who tells us how the Tungri, *i.e.*, the Tencteri, crossed over and settled in their new quarters west of the Rhine, in the time of Augustus. "Secundum quos ad orientum Tungri barbari concessam sibi ab Augusto imperatorum primo regionem incolebant." (Procopius, "Bell. Goth.," I, 12.) ("Histoire des Carolingiens, Warnkœing, and Gerard," i, 4.) They settled in South Brabant and the neighbouring districts, and gave its new name to Aduatuca, which was afterwards known as Tongres. Pliny tells us that Spa was within their territory. Tacitus tells us that those who first crossed the Rhine were then called Tungri, and afterwards Germani.

The name occurs in other forms, thus, Gregory of Tours calls them Thoringians, *i.e.* Thuringians ("Hist. Franc." I, II, chap. ix.) He also tells us that the old Frank king Clodion, lived at Dispargum, on the borders or within the pagus of the Thuringians. It has been read either way, the expression being "in termino Thoringorum" ("Warnk." etc., 40.)

Another form of the name I believe most firmly, is Toxandri. The name occurs in Pliny for the first time. He tells us merely that they dwelt beyond the Scheldt under various names. (Pliny "Nat. Hist.," IV, 17.) Their name still survive in the village of Tessenderloo, close to Diest, already mentioned, and, therefore, if they were not identical with the Tungri, they were next neighbours. But I believe them to have been the same people; for, while Pliny does not seem to mention the Tungri in his general description of Germany, Tacitus does not name the Toxandri. It was common to get rid of the nasal ng or nk, thus Franki was altered into Frakki, etc., and it may well be that Toxandri was a Celtic corruption of Tungri. The former gave their name to the Gau of Toxandria, which comprised the present districts of Campine and Kempen, north of Limburg.

All the Tencteri did not, however, cross the Rhine, nor yet the Usipetes, but I hope to treat of them as well as of the Sigambri and of their neighbours in a future paper on the Catti.

My object in the present paper has been to call attention to certain points in the ethnography of the early Germans, of which sufficient notice has not been hitherto taken, namely, of the very marked influence the Celts must have had in their composition or constitution. It will be admitted that the facts I have adduced merit some explanation. To find the names of all the towns within the borders of certain of these tribes of Celtic etymology, to find that they were led by chiefs of Celtic race,

may mean no more than that, in the one case they had overrun and appropriated a Celtic area; in the south the territory of the Mediomatrici, and in the north probably that of the Morini and Menapii; while, in the other case, it may be that the chiefs were of different race to their followers, or bore names given them by their mothers, who may have been Celts.

On the other hand, it may be, as I believe, and as everyone will, I fancy, conclude, who has compared the flaxen-haired, and very purely Teutonic Frisians with the black-haired Dutch and Flemings, in their own country, that the latter are essentially a very mixed race, and that the facts I have mentioned are so many factors in the proof of their being so. I only offer my conclusions as tentative ones, and hope to prosecute the inquiry further on another occasion, when I hope also to be able to profit by the criticism which these remarks may call forth.

Mr. Atkinson exhibited for the Rev. C. J. Roger, rubbings from a Runic inscription in Cunningsburgh Churchyard, and an Ogham inscription from Lunnacting, Shetland Isles.

Thanks were ordered to be returned for the above, and the meeting separated.

The following paper was read on the 10th of April, as mentioned, p. 125 of the *Journal*.

AUSTRALIAN LANGUAGES AND TRADITIONS.

To the Honourable the Colonial Secretary of New South Wales.

SIR,

I have the honour to lay before you, as a supplement to my reports on the Aboriginal Languages and Traditions, the following additional information recently obtained from different quarters. The reports transmitted in 1871, for which I had the honour of receiving the thanks of the Right Honorable the Secretary of State for the Colonies, were as I am informed, welcomed as a contribution to philological and ethnological science, and I believe those who were interested in the former reports will prize the information here given, especially that furnished by the Rev. Charles Greenway, of Bundarra, in the north-western district of this colony. Mr. Greenway has been acquainted with "Kamilaroi" from his youth, and both as a philologist

and as a minister of the Christian Faith has taken a deep interest in the welfare of the aborigines and in researches concerning them.

N.B.—The letters are used as in my former reports; *ā* as *a* in father, *ē* as *ey* in obey, *ī* as in marine, *ū* as *oo* in moon, *ai* for the sound of eye, *ao* as *ow* in how, *ɣ* and *ɣ̃* for the sound of *ng* in ring. *G* has always the hard sound as in go.

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KAMILAROI LANGUAGE AND TRADITIONS. By Rev. CHARLES C. GREENWAY.

I. NOUNS.

Man, *kiwīrr*.

Woman, *yīna* or *yīnar*.

Boy, *berī* (boys, *beriberī*).

Girl, *mīai* (girls, *mīaimīai*).

Child, *ghai* or *kai*.

Infant, *kaɣal* (hence the verb *kaɣuni*, to bring forth).

Youth, that is young man having yet boyhood, *beridūl*.

Maid, young woman having yet girlhood, *mīaidūl*.

Young woman whose breasts appear, *ɣamūrawūri*; from *ɣamūr*, breast, and *wūrūr*, swelling.

Father, *būbā*.

Mother, *ɣumbā*.

Spouse, wife or husband, *kolia*.

Elder brother, *tai-ārdi*.

Younger brother, *kullami*.

Sister, *bō-wārdi*.

Son, *wūrumi*; *wūrūr*, filling (the arms).

Daughter, *ɣamūrr* (borne at the breast).

Uncle, *karōdi*.

Childless one, *meraidūl*; *merai*, borne of, *dūl* (diminutive possessive).

Unmarried man or woman, *kolia-tāliba* (wife or husband-less).

Spirit, demon, or white man, *wundah*.

[The Aborigines thought white men to be spirits. "Guram"]

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is used by a coast tribe, with the same signification; and "bukra" by the African negroes.]

Head, gha or ghah.

Hair (of head), kaogha.

Hair (of the moustache), buti.

Hair of the moustache, bütibri (with conjunctive affix ri).

Chin, or beard on chin, yari.

Tooth or teeth, yira.

Eye or eyes, mil.

Ear or ears, bina, or binar, or wūta.

[In one tribe "wuta" is the act of hearing, and "bina," in the ear. Paia wūta = I hear. In another "bina" is the act of hearing, and "wūta" the ear: thus paia binanalli = I hear.]

Knee, thinbiri.

Bones, būra or būrar.

Nails (of hands or feet), yūtū.

Tongue, thuli, or tahli.

Ribs, tura.

Vein, berani.

Breast, pamū.

Nose, mūrū.

Hand or hands, murra.

Foot or feet, dhīna or dīna.

Arm, būjūm.

Shoulder, walor.

Thigh, turra.

Leg (below the knee), būyū.

Loins, ghūlūr.

[Ghūlūr, or ghula, also signifies the girdle or waist belt].

Skin, yūli.

Blood, gūi or gūē.

Forehead, pūtū.

Head band, pūlūghet.

Left hand side, warragal.

Right hand side, turial.

Kangaroo, bundarr.

Sheep, jimba (*i.e.*, jumper, no native name).

Kangaroo rat, gūnūr.

Paddy-melon, merūr.

Striped iguana, yūliāli.

Opossum, mūti.

Horse, yerāman (yera or yira = teeth, man = with).

Horned cattle, nulkainulka.

Milking cows, millimbrai (suffix rai, belonging to).

BIRDS, TIGHARA.

Eagle hawk, mullian.
 Owl (having a cry like its name), būkūtākūtā.
 Crow, whāro.
 Pelican, gūlambūlain or guliah (from guli = net or fish bag, and affix ali = having).
 Laughing jackass or great kingfisher, kūkūburra or ghūkūghagha.
 Emu, dhinawan or pūri (dhina = foot, wan = strong).
 Native companion, burah gha (booral = large, gha = head).
 Black duck, kurranghi.
 Wood duck, gūnambi.
 White cockatoo, morai.
 Squatter, or white-cheeked pigeon, mūnūmbi.
 Crested pigeon, gūlūwilī.
 Bronze-wing pigeon, tāmūr (or tahmoor).
 Cockatoo pigeon (a small grey pigeon), wirriah.
 Very small green parrot, ghidjirighā.

ANIMALS (not fish nor birds), AHI.

Ground lizard (ruffed), būllawhākūr.
 Iguana (tree climber), tūli (tree = tūlū).
 Brown or grey snake, nībi.
 Black snake, nurai.
 Carpet snake, not venomous, yebbā.
 Hedgehog, murrowal or buttah.

FISH, GŪYA.

Cod, kūdū (very large kind, kūkūbul).
 Perch (jew fish or black fish), kumbal.
 Herring (abundant in the Barwon), cheringā.
 Mussels (large), tunghal.
 Mussels (small kind), kinbi.
 Lobsters, or large shrimps, kīrī.

INSECTS, KAO.

Mosquito, mugin.
 Bug, bhuttha.
 Flea, biriji.
 Red stingless ant, karlan.
 Bee, warrūl (the word also means honey).

TREES, PLANTS, &c.

Oak, bila, or bilarr (hence bilarr = spear, made of oak).
 Sandalwood (and what is made of it), kārrwī.

Pine, gorārī (high).
 Accacia pendula, burri (hence burrin = shield).
 Kurrajong (and lines or cords made of it), nunin.
 Edible flag (in swamps), būrara. -
 Mistletoe, bhan.
 Wild orange or guava, bumbūl, or bumble.
 Other trees, ghidyīr and mulka.
 Wood, tūlū (also a spear).
 Trunk or stem, warrun (warina = standing).
 Branches (arms), bujun.
 Main branches (thighs), turra.
 Bark, tūra.
 Skin-bark, bōwar.
 Leaves, karril.
 House, gundi.
 Resting-place, camp, native place, tuckramah.
 Clear place, killū.
 Mud, millimilli.
 Sun, yarraī.
 Moon, gilli.
 Stars, miri.
 Sky, gūnakulla.
 Cloud, kūnda.
 Water, kolli.
 „ kurup.
 „ wallon.
 Fire, wī.
 Daylight, gurrān.
 Darkness, gūrū.
 Night, būlūi.
 Smoke, toh, or dhū.
 Dust, yū.
 Morass, marlawah (a place difficult to walk through).
 Net or bag, gulag.
 Net or girdle, gūlūr.
 Yard or enclosure, whunmul.
 Door (what shuts out), ghirinal.
 Hook, yīnab (hence yīnabi = caught).
 Thistle, kurraman.
 Grass, ghorarr.
 Herbs, ghian.
 Sword, kutilan (corruption of cutlass).
 Axe, yūndū.
 Stone, yarral.
 Mountain, kobba or kubba.
 Hill, tiyūl.

Plain, gūnial.

Long plain, swamp or glade, gorahman.

River (large), bukhi.

Rivulet, maian.

Water-course, including trees along the banks, warumbui.

Flood, wūkawā.

Rain, yuron.

Thunder, tūlūmi.

Lightning, mi.

The wind rises, miar dūri.

The Pleiades, Miaimiai, or Mūrūnmūran.

Orion, Beriberi.

[N.B.—The Pleiades are “the girls,” Orion “the boys.”]

Venus, Zaijikindamawā (*i.e.*, I am laughing. Sometimes they call Venus “*ḥindikindaoa*,” or “*ḥindikindamawa*,” you are laughing. She has been their goddess of laughter”).

Tail, or any pendant, dun, or dhūn.

Cap, kabūmdi or kabukan, a corruption of the English.

Fat, ghorī.

Lean, bunnār.

Belts or pendants round the waist, tubilka.

The milky-way, warrumbūl, also burribeaudūl.

[The milky-way is a watercourse and grove abounding in all delights, to which good men go when they die].

Food, yūl.

Water vessel, walbon (from wallum = water).

Seed basket or bucket, kūlūman (from kūlū = seed).

The place of Initiation into manhood, burah.

[There the būrr, or mystic cord is used, and the initiated is invested with the būrr or belt of manhood.]

Gooseberry-like fruit, pīban.

Red-stone fruit, goēdtha, or guadtha, or warroba.

[This fruit grows in the scrubs of the Darling and Namoi. It is red, and outwardly resembles a Siberian crab. It tastes like tamarind. The stones are much used as ornaments. The word is from gui = blood, or red.]

ADJECTIVES.

Clothed with fur, tūrūnbrai.

Clothed with feathers, wirilarai,

Stinking, hateful, nui.

Small (as a hair) buti, or būtiandūl.

Small (as a child) khaiaudūl, ghaiandūl, or ghaidūl.

Slow, lazy, bullawa.

Quick, eager, kiahbar.

Large, expansive, mungūl.

Angry, sharp, yīli.

Bald, bare, balal (balal kawga = bald-head).

Bare, destitute of anything, childless, or hungry, mirade or merāid.

[Foodless, nubal, merāid, fireless, merāde wī ; taliba also means "destitute."]

Kolia-taliba = without a spouse.

Wi-taliba = without fire.

Kolle-taliba = without water.

Strong (standing against attack), warringal.

Tall (long), gorah.

Tall (high), kuddo.

Sick, weary, wibil, or burning with pain, wiwi.

Ugly, nasty, vile, kah-ghil.

Bitter, stinking, bhutah or butta.

Sweet, nice, beautiful, murrabā.

Good, honest, desirable, well conducted, koppa.

Tired, worn, sore, iughil.

Tired, slow, knocked-up, marlo.

[Marlo gai ghini = I'm knocked-up.]

Afraid, alarmed, faint-hearted, ghil ghil, from ghi, the heart.

Cowardly (inclined to cry out for fear), gurri gurri.

Grey, old, dira, or dhira.

Old fellow, man, woman or brute, diradul.

Stupid, deaf, cross, obstinate, wambah.

Sensible, hearing, binal (from binar, the ear).

Dead, bālūmi, or balo, or bhalo.

[Wi baloni = the fire is gone out.]

Angry, yīli, or yilian.

White, bulah or bhullah.

A white thing, bhulladul.

Black, dark, būlūi.

A black thing, būlūidul.

Fasting, or bound, from religious considerations, to abstain from certain food, bunall.

NAMES OF PLACES.

Collemungool, or Kollemungul, a station on the Barwon ; from kolle (water), mungul (expansive) = Broadwater.

Kooroongorah, or Kūringorā = Longwater.

Wallongorah also means Longwater.

Drilldool (a corruption of Tarildul) = reedy, from taril = reed
Tarilarai, having or abounding in reeds.

Yalaroi (a corruption of Yarralarai) = stony, from yarral, stone or rock, and arai, possessive affix.

Bukkulla, place of the leopard-wood tree, or Australian ash.

Moorkoodool, Mürdūdūl, place of oaks (mürkū).

Wee Waa, or Wi Wā, fire thrown down; from wi (fire) wha (thrown).

Gundimyan, or Gündimaian, house (gūndi), on the river (maian).

Breena, or Birīna, or Birīji, or Birīdya, place of fleas.

Pokotaroo, or Bukkitārō, river (bukki), going (aro) wide or far.

Piliga, or Bilagha, scrub oak (bilā), point or head (gha).

Gramau, *i.e.*, gorah mahn, long plain or glade.

Warra, left-handed, *i.e.*, on the way from Murrurundi.

Barwon (river), great, wide, awful.

Breewarrina, Buri warina tree (*accacia pendula*) standing up.

Briglow, Burreeagal, burree (tree), gal (related to); buriagalalah, habitat (ah) of the burreeagal.

Namoi, or puni, or jamū, breast. The river is curved like a woman's breast.

Goyder, or Guīdā (river); red (guī), banks, (ā) place of.

Gooneewaraldi, or gunyawaraldi, white stone spread.

Bogabri, or Bukkibrai, place of rivers or creeks.

Gunedah, or Gunīdā, place of white stone (gūnī).

Culgoa, running through, or returning.

Cobbedah, or Kobadā, place of a hill.

Manilla (river), or Munilā, round about. (Munilā gai yāni = I go round about.) This river makes almost a circle, and returns to the Upper Namoi.

Millee, or Mili, white (from pipe-clay, silicate of magnesia).

Tooloodoona, or Tūlūdūna, made (with a chisel) of wood, as a spear.

Coghill, or Kugil, bad, nasty (water).

Pallal or Balal (on the Horton), bare. This station is remarkable for bare patches, rocks, &c.

Bundarrā, the place of kangaroos.

Molroy, properly Murrowalarai, abounding in murrowal (hedge-hogs).

VERBS.

To chop (with an axe), bhai or bai; chopped = baialda

To cut (as by a saw), kurrila.

To cut (with a knife), or to skin, bhi or bhini.

To thrust, or stick (as with a spear), dūni.

To hoist, as cord, wiri.

To pour out, spill, yahree, or yari.

To spread, let out, whārū, or wārū.

Cease, stop, desist, kurria (kurria goalda = cease talking).

Be quiet, let go, don't, tahbaa, or tubia.

To see, yumilli (gai yumilli, I see; gunna yumilli = I am seen).

To want, gin (hence yulgin = I am hungry, I want food (yug), kollo gai gin = I am thirsty, or I want water).

To mind, guard, watch, yuminil-mali.

To drink, to absorb, purrūghī.

To eat, to swallow, taldini or tuldini (tul = tongue).

To hear, winungalli.

Rise, get up, (imper. warrea).

To catch, kunmulli (imper. kunmulla).

To rob or take by force, karramulli (imper. karamulla).

To make (in any way), ghimabilli.

To make, or shape by chopping, bhaialli (imper. bhaiamulla).

To split, bharuni (I split the wood, tulū gai bharuni).

To dig, or scrape out (a pit), moaghi.

To draw out (as to milk a cow), nūnmulli.

To suck (the breast), yāmūgh.

To taste (from talli or tulli = tongue), tatulli.

To blow (as to smoke a pipe), būbilli (gai būbilline = I am smoking).

To ask, or inquire of, taialdini.

To carry, or bear off, kārgi (imper. kargilla, or kalghilina).

To catch (as a fish with hook), yenā billi (imper. yenābilla).

To thrust through with a spear, dūrilli.

To sew (with a needle), ningilli or piyilli.

To strike, knock down, overthrow, būnialli.

To stand up (as a man or a tree), waddlini, or warrum (imper. warruna).

To enter (as one stream into another, or water into a vessel), yarimulli or yarūmulli (imper. yarrayarra; yardlina, it does pour into).

To sit, nāri (imper. nāria).

To swim, kūbī.

To take up, lift, djeamulli (imper. djeamulla).

To call, to shout, khakulli (imper. khakulla).

To weep, to wail, yūghi.

To rejoice, to dance, yūgāli.

To laugh, or make fun, kindāmi, or kurdāinulli.

To walk, tarrawulli.

To climb, ascend, kulhae.

To hear, winnugalli.

Get up (imper. warria).

To sing, baoilli.

ADVERBS.

To-morrow, *yūrūkas* (night over).
 Some time hence, *yerāl* or *yerarl*.
 Yesterday, *ghimiandi* (past day).
 Very long ago, or very far off, *nāribū*.
 Near, close, *kuimbū*.
 Immediately, *yelaaho*, or *yilhaatho*.
 There, beyond, *putta*.
 Here, *nialli*.
 Far (distant in space or time), *berū*, or *berūji*.
 In this place at any side or cheek, *nabū*, or *nabbū*.

PRONOUNS.

I, *pai*.
 We two, *palli*.
 Mine, our own, our tribe, our land, *ghūryugun*.

SUFFIXES.

Arai or *rai* signifies possession, and has the sense of *ous*. Thus
yīna-arai = having a wife ; *kolia-arai* = having a spouse ; *kiwīra-
 rai* = having a husband ; *yīramanarai* = having a horse ; *millim-
 brai* = milkers, cows having milk ; *junbabrai* = shepherd, having
 sheep ; *yūlarai* = having food ; full, opposite to *yūljin* = hungry ;
ūl or *dūl* = like, having the quality of.

PHRASES AND SENTENCES.

I sleep, *pai baubillani*.
 Verily I did sleep, *kir* (or *kearr*) *pai baubillini*.
 I hear, *pai winnungilun* (or *winnungī*).
 I have truly got honey, or "cut out" honey, *warrūl kearnjai
 bhaialdona* (or *baū*).
 I have well slept, *pai nūraraghinye*.
 I fish (hook fish), *ghūya paia yenabilli*.
 I split wood, *tūlū pai bharūni*.
 We two are friends (or belong to one another), *guyungun palli*.
 Friendly people, *guyungundūl murri*.
 Enemies, *yilian murri*.
 So, in this way, *yellina*.
 In this manner, *yīlakwai*.
 What do you say ? what is it ? *mīenya* ? or *mien yariy* ?
 Why do you do this ? *mienya go* ?
 Ejaculations of surprise, how great ! how grand ! *kuttabal !
 kuttabal !*
 How strange ! *pī pai* !
 [The idea of intensity in greatness, distance, proximity, etc., is

expressed by prolonging the final syllable, sometimes the root syllable, as *narrib ū!* very far off indeed.]

Kāi-medūl, very young and small indeed.

Yes, *yo* ; *kirr* is used as an emphatic yes.

Yes, *aiyo*, *kirraol* or *kerraol* = truly (uttered with solemnity).

Hither, this way (come), *tai*.

That way, *arrigo*.

Here, *numma*.

At your hand, *murru*.

This side (of a river, &c.), *ūriallina*.

The other side, *garigallina*.

The far side, *mūlanda*.

Soon, *yela* ; immediately, *yelādtho*.

Before long, or not long ago, *yelambo*.

Like, resembling, *kerrr* or *kearrt*, as *pukadi kearrt* (like a squirrel),
bhan ghearrt (like the appearance of mistletoe).

I am abstaining from cod, *ṇai wanall kūdū*.

Me bound to abstain from kangaroo, *gunna wanall bundarr*.

TRADITIONS.

Bhaiami, *Baiaime* (or *Bhiahmee*) is regarded as the maker of all things. The names signify "maker" or "cutter out," from the verb *bhai*, *baiailli*, *baia*. He is regarded as the rewarder or punisher of men, according to their conduct. He sees all, and knows all, if not directly, through the subordinate deity *Turramūlan*, who presides at the *Bora*. *Bhaiami* is said to have been once on the earth. *Turramūlan* is mediator in all the operations of *Bhaiami* upon man, and in all man's transactions with *Bhaiami*. "*Turramūlan*" means "leg on one side only," one-legged.

Turramūlan has a wife called *Muni Burribian* (*Moonee Burrebean*), that is, egg or life, and milk or nourishing, who has charge of the instruction and supervision of women. For women may not see or hear *Turramūlan* on pain of death.

The "*tohi*" (smoke, spirit, heart, central life), that which speaks, thinks, determines within man, does not die with the body, but ascends to *Bhaiami*, or transmigrates into some other form. It may be a *wandah* (*wunda*) or spirit wandering about the earth. The "*bunna*," flesh or material part, perishes ; the "*wundah*" may become a white man. The transmigration of the "*tohi*" is generally to a superior condition ; but those who are very wicked go to a more degraded and miserable condition.

Forms of incantation are used. The Deity is supposed to be influenced by charms, worked through the agency of

certain stones and magical cards ("burr"). It is also supposed that men are capable of acquiring magical or supernatural powers, and pretenders often self-deceived have arisen. As among Christians, many are grossly ignorant of Christ and of God, and become slaves to their own imaginations and to degrading superstitions, it is not to be wondered at that blacks should be ignorant of Bhaiami, of Turramulan, and of their moral and religious code.

TRADITION CONCERNING ORION AND THE PLEIADES.

The Pleiades, *Miai Maii* (meaning girls), were *paribū ghibalindi* (i.e., a very long time ago), living on earth. They were young women of extraordinary beauty. Orion, "*Berriberi*" (meaning young men) becoming *būral winupilan* (enamoured) of these young women, pursued them, one particular warrior being foremost. *Miai Maii* fled and prayed for deliverance. They were favourites of Bhaiami and of Turramulan, who granted their request. They climbed to the top of some very high trees; and by the help of Bhaiami sprang up into "*gunakulla*" (the sky, or heaven), where they were changed into beings of light. One of them not being so beautiful as the rest, or being less favoured, hides behind the other six; and it is said to be "*gurri gurri*" (shy or afraid), that is the pleiad which is scarcely visible, or less conspicuous than the rest.

Soon after the elevation of *Miai Maii* to the heavens, *Berriberi*, or the leader of the young men, was taken up, and now appears as a constellation (Orion) with his "*burran*" (boomerang) and "*ghūtūr*" (belt).

The sun, "*yarai*" or "*yurōka*," is masculine.

THE BORA (OR BOORRAH).

This is an institution for the admission of youth into the rank of manhood. Meetings for the Bora are summoned at irregular periods, as emergencies arise. The youths who are initiated are instructed in the mysteries of their supernatural beings; and their moral and religious codes are enumerated with much solemnity. Symbols are used, rites are practised, fasting is enforced. Turramulan is represented by an old man, who is learned in all the laws and traditions, rites and ceremonies, and assumes to be endowed with supernatural powers. It is certain that most of those who have passed through the Bora are profoundly impressed with a sense of obligation to observe the moralities and spiritualities there enumerated.

Here instruction is given in the law of consanguinity and intermarriage. In one respect this law agrees with the

Mosaic code, it allows not marriages with a wife's sister during her lifetime. Polygamy is 'permitted under certain restrictions. The infraction of these is punished by corporal and spiritual penalties. It is generally observed more sacredly than the Christian code among the whites. In connection with the Bora abstinence from particular kinds of food is enforced, in some cases for years.

It is called the "Boorrah," or place of the "boorr," because the boorr, or belt, is used in the incantations. The neophyte is solemnly invested with the "boorr," or belt of manhood.

It is unlawful to mention the Bora, or anything connected with it, or the name of Turrumulan in the presence of women. Most of the Murri imagine that evil influences are exercised by means of the "boorr;" when sickness occurs they say "üerrma boorr warlah" (those people are throwing the belt). For instance, the Murri on the Barwon River and on the Bree, attribute the prevalence of smallpox (of which some of them retained marks a few years ago) to the throwing of the boorr by a hostile tribe on the west.

SONGS, BAOILLI.

Baoilli (song of derision of one of the same tribe).

ḡāndū-nāgō turri ghilliana
Buzbūn mulligo zo zīn bularr
ḡai murrin gaia warranbraia
ḡirrego ma toh dirraldaia.

Who comes? large head of hair,
Arms crooked, like cockleshells two,
It is one of my people, on the road he is,
Forth smoke is proceeding.

Baoilli II (an English scene. The song illustrates the aboriginal art of constructing new words from the English).

Publikaor wiritheah
Djeamillia nūri mir
ḡummildiago karniwaiandi
Drunghilla trānal a dimi

Public house* shouting or screaming,
Grasping hips or thighs
He appears, tripped by a stick,
Drunken, stricken with fits.

* The aborigines cannot sound s; the name Yass on our maps was originally "Yarr."

Baoilli III. Yugal, or song composed for dancers..

Burran būrin belar būndi
Muraea berar karni
Wakara wārōi tubilkah Būndin
Yumba yumbū gūmil
Warakel munan

Shield of Burree, spear and club,
Throwing stick of Berar bring ;
The broad boomerang of Waroll,
Waist-belts and pendants, aprons of Boodon.
Jump ! jump ! use your eyes,
With the straight emu spear.

Baoilli IV ; another Yugal.

Murri goriah
Yeraman buraldi
Wi wi kurrallah
Millimbrai kakullah kirawa
Black man very fat,
Horses driving,
Firewood cutting,
Milking cows, lowing,
Seeking for them.

Baoilli V ; a ghīribal or song imitative of animal sounds and habits.

Beralah, black musk duck, or diver.
Ya gaia paringa (repeat *ad libitum*.)
Pumba nar, go (repeat and transpose *ad libitum*.)
Mingo aha karai (repeat *ad libitum*.)

Ibbiribi tar waggah whoogh. (At this word the cheeks are filled with breath like a bladder, and then suddenly as it were burst.)

Baoille VI ; ridicule of one of another tribe.

[Most of the words of this song are of the Warlarai (Wolaroo) dialect, which has a close affinity to the Ghummilarai or Kamilaroi].

Mullor mulla gha ibbeliam buli
Bunnakunni, bunnakunni
Kiramai gunman
Dhuddi gaia
Inghil bunmalumi
Būnda wahnī

Spirit like emu, as a whirlwind
 Pursues (or hastens);
 Lays violent hold on travelling (wandering).
 Uncle of mine (derisively)
 Fires out with fatigue,
 Then throws him down (helpless).

End of Mr. Greenways's information.

WAILWUN LANGUAGE AND TRADITIONS.

(Information derived from Mr. Thomas Honery, Upper Hunter.)

Wailwun or *Ḫiumba* is the language spoken along forty miles of the Barwon, from the junction of the Namoi downwards. It is called (Wailwun) from the negative "wail" (sounded like the English word "wile"), meaning "no" it is called "*ḡiumba*" from *ḡia* = to speak (Mr. Honery prefers the name "*ḡiumba*," which he says is that generally used by the people as the name of their own language. They call themselves "Wailwun," and sometimes use this word for the language.

There are about a thousand blacks now speaking *Ḫiumba*. The next language down the Barwon is "Burrumbinya," and the next "Kuno" which is spoken at Fort Bourke. The neighbouring languages are "*Mūrūwurri*" spoken on the Bree; the *Calgōr* and the *Narran Yualari*, on the Balonne; and "*Kuāmu*," on the Warrego. "*Yualarai*" differs from "*Wolaroi*" spoken on the Gwydir. In "*Yualarai*" *no* is *woggo*; in *Wolaroi* the negative is "*wol*."

NIUMBA, WORDS. I.—NOUNS.

Man, <i>tahūr</i> .	Chin, <i>kīr</i> .
Woman, <i>wīringā</i> .	Throat, <i>nuggi</i> .
Women, <i>wīringāi</i> .	Neck (back), <i>nirrimirri</i> .
Many women, <i>wīringamboi</i> .	Shoulders, <i>wurrū</i> .
Boy, <i>murrukunga</i> .	Arm, <i>nūrrū</i> .
Girl, <i>māriyngga</i> .	Forearm, <i>pī</i> .
Baby, <i>wūrū</i> .	Elbow, <i>ḡunūka</i> .
Little baby, <i>wūrūdhūl</i> .	Hand, <i>murra</i> .
Maiden, virgin, <i>kuma dhiliu</i> .	Poll, <i>nān</i> .
Blackfellow, <i>mai</i> or <i>maiai</i> .	Eye, <i>mil</i> .
White man, <i>wunda</i> .	Nose, <i>mūru</i> .
Male (man or beast), <i>mundewā</i> .	Mouth, <i>pundal</i> .

Father, bubā.	Lips, willi.
Mother, gūnī.	Teeth, wira.
Brother (man), kukkā.	Tongue, tulle.
Sister (woman), kati.	Ear, kirigera.
Brother (boy), kukkamin.	Finger, wurria.
Sister (girl), gidura.	Thumb of the fingers, gūnī.
Wife,* pūan.	Toe, wurria.
Uncle, kānī.	Great toe, gūnī.
Aunt, māmā.	Chest, wirri.
Cousin, pūlūngān.	Belly, buri.
Truant wife, yanawē.	Armpit, kilkulbūri.
Head or skull, kubōgā.	Breast (woman's), pummū.
Head or hair, wulla.	Navel, gindyūr.
Forehead, pūlū.	Thigh, dhurrā.
Beard, kir.	Calf or leg, kaia.
Moustaches, mūlagin.	Leg (below knee), piyu.
Whiskers, nārma.	Foot, dhina.
Cheek, tdhukal.	

ANIMALS.

Kangaroo, murūi.	Whip-snake, murai.
Opossum, kuraki.	Death-adder, murai.†
Emu, yuri.	Pigeon (squatter), mūnūmbi.
Bat,† wibullabulla.	Pigeon (top-knot), laoilgera.
Swallow, millimārū.	Duck (wood), gunambi.
Laughing jackass, } kukburra.	Duck (wood), gunambi.
great kingfisher }	Horse, yirāmān.
Crow, wārū.	Sheep, tumba.
Native Companion, burulga.	Dog, mirri.§
Cod (fish), kuddu.	Eagle, mullion.
Black bream, bupulla.	Swan, burrima.
Yellow bream, bidyun.	Pelican, wirea.
Jew fish, tuṅ-gūr.	Cockatoo, murai.
Cray fish, wingar.	Pigeon (bronze-winged), yamur.
Boa, mupun.	Duck (in general), wiruwarra.
Black-snake, yūki.	Duck (black), būdambā.
Brown snake, tdhūrū.	Duck (teal), buiga.
	Yam, kunōwa.

[This yam is sweet, juicy, and very agreeable. It grows to the size of a large water melon, and as many as sixteen yams are found one on root. It grows in sandy ground, and has above

* That is what is called in Kamilaroi "gütir" one who may lawfully be taken as a wife; thus "Ippatha idhuru" is "puan" to "Ippai yuri."

† The bat and the swallow are sacred, and are never killed.

‡ The name of the whip-snake and death-adder is the same; both are deadly. The name of cockatoo differs only in the length of the u.

§ In Barrunburga language, mirri means a horse.

the surface only a small vine ; informant never saw any seed or flower upon it.]

Ironbark, bigur.	Yellow-box, mulli.
Boomerang-tree, mulga.	Moon, kiwur.
Sun, dhuni.	Boomerang, bier.
Namoi (river), kimmwi.	Myal (<i>accacia pend.</i>), būri.
Sacred stone, wiar.	Bastard myal, yimma.
Gum-tree, guara.	Venus (emu), jūri.

[This stone is in the king's (chief's) possession, and by putting this in his mouth and spurring it out at anyone, he can cause his death. One of his men goes and kills the person thus marked out for destruction.]

Friendship (or friends), maindyūl.	Enmity (or enemies), kulgiurun
Astonishment, gudūwundūbaigu.	or kulgiyan.
	North-west, mirūraka.

ADJECTIVES.

Good, yiada.	Alive, mūun.
Bad, wurai.	White, buzobā.
Great, thurupal.	Black, būlui.
Small, buddhūdhūl.	Blue, būlui.
One, māgū.	Red, girawil.
Two, būlugur.	Yellow, gūnaingūna.
Three, kulibā.	Green, gidyungidyun.
Four, būlugurbūlugur.	Brown, dhugngnglia.
Old, bugaia.	Five, wirungun murra.
Young, dhulupaimbā.	

PRONOUNS.

I, jāttu.	Ye, jindngul.
Thou, jindu.	He, mundēwū.
Ye two, jindūlā.	We, jēene.

ADVERBS.

Yes, jārū.	Above, gunaowa.
No, wail	Below, gunadhur.

Many words are the same in Kamilaroi and Wailwun, but a large number are different.

SENTENCES.

Did you see me ? jāmāndu ahi jani ?
 Yes, I saw you, jāru nu dhu jāni.
 Ippai built a house, Ippāudu wūme jnnu.

Murri pulled it down, Murringu wirune.
 Kubbi killed Kumbo, Kuhbingū gūnē Kumbugu.
 Kumbo killed Kubbi, Kumbugu Kubbiṇa gume.
 What for ? minyango ?
 The greatest of enemies, kulkiwunwungān.

GENEALOGY AND MARRIAGE.

Like the Kamularoi, they have four family names of men, and four of women ; Ippai, Murri, Kumbo and Kubbi ; and Ippāthā, Māthā, Būdthā and Kubotha.

These are also divided into murūi or murūwi (kangaroo), yuri (emu), tdhūrū (brown snake), and kuraki (opossum). There are therefore four classes of Ippai, namely, Ippai murūwi, Ippai yuri, Ippai tdhuru, and Ippai kuraki, and so of the others, making sixteen classes of men, and sixteen of women. Kumbunga is a young kumbo, murringa a young murri.

When tribes go to war, each carries its own representative animal stuffed, as a standard.

According to Mr. Honery, the only rules observed as to marriage and descent, are these two : that a man cannot take a wife of the names corresponding with his own, and that parents may not give their children their own names. Thus Murri Kuraki may not marry a Matha Kuraki, but he may marry Matha Tdhuru, or Ippatha Kuraki, or any woman except Matha Kuraki. Ippai Tdhuru may marry any woman but an Ippathu Tdhuru ; the children of the kuraki and a tdhuru, must be either murui or yuri. It is likely enough that in some families the rules are more or less relaxed. The two rules above given are carried out in the more complete system, which has been described in former reports. Mr. Honery also states that brothers and sisters have different animal names. Thus all brothers of Ippai Tdhuru are also Ippai Tdhuru ; but his sisters are not Tdhuru, though they are all Ippatha. Sometimes the brothers are Ippai Tdhuru, and the sisters Ippatha Kurabi.

When Ippai Tdhuru marries Kubotha Murui, their children are Murri Kurabi and Matha Yuri ; when Kumbo Yuri marries Matha Kurabi, their children are Kubbi Tdhuru and Kubotha Muriū.

TRADITIONS.

Bai-ame made all things. He first made man at the Murula, (a mountain between the Narran and the Barwon). Bai-ame once lived among men. There is, in the stony ridges between the Barwon and the Narran, a hole in a rock, in the shape of a man, two or three times as large as an ordinary man, where

Bai-ame used to go to rest himself. He had a large tribe around him there, whom he fed at a place called "Midul." Suddenly he vanished from them and went up to heaven. Still though unseen he provides them with food, making the grass to grow. They believe that he will come back to them at some future time.

There was formerly a bad spirit, called Mullion (the eagle), who lived in a very high tree, at Girra on the Barwon, and was wont to come down and devour men. They often tried to drive away Mullion by piling wood at the foot of the tree, and setting fire to it. But the wood was always pushed away by an invisible hand, and the fire was of no avail. Bai-ame, seeing their trouble, told a black fellow to get a murruwunda (a little red mouse), and put a lighted straw in its mouth, and let it run up the tree. This set fire to the tree, it blazed up, and from the midst of the smoke they could see Mullion fly away. He never returned to vex them. The smoke that arose from the burning of that tree was so dense, that they could see nothing for some days.

"Kinirkinir," the spirits of the departed, are supposed to wander over the face of the earth. "Buba" (father) is used as the name of an old kangaroo, father of the whole race of kangaroos, whose thigh-bone is preserved and carried about by one of the tribes. This bone is 4 feet long, 7 or 8 inches round, and tapering in form.

It was found long ago in the Murulu ridges. The Murui of the tribe have charge of it. "Youi" is a spirit that roams over the earth at night. "Wawi" is a snake in the water, that used to eat black fellows. They could never kill it. "Murriula," a dog-like monster, formerly in the waters, not seen lately. They say the water was formerly all over the region between the Barwon and the Narran.

KINGS.

Each tribe chooses its king. There is no formal act of choosing or appointing a king. The tribe gradually recognise the superior activity and prowess of their ablest man; and by general consent he becomes king. A king can always find some one to carry out his wishes, in killing those whom he dislikes. In one instance a king was killed in revenge for killing his wife's baby. He had sent his wife away, and she came with a baby. He said it was not his child, and beat his wife and drove a tomahawk into the head of the child. The woman's brother then came and killed the king with his spear. The tribe coming up, and seeing their king wounded to death, attacked

the wife's brother. Some took his part, and in a fight which ensued this man and his partisans prevailed. He was then made king in place of the man he had killed.

He was called "Waiaburra Jackey."

CARROBAREES.

At their carrobarees, or festivals of singing and dancing, they sometimes have stuffed birds on their backs; pelicans, swans, emus, &c. They hop and run about in imitation of the birds. The women sit down and sing.

When the Black Police first appeared on this river, the following song was composed and sung at carrobarees:—

Murāgō muringā dhī
Guria bai go
Dhiniligo Dunuligandhu mini
Gūrāgō.

Go on, blind, all of ye,
Go on for ever, I hope
To Sydney, to Sydney for ever,
Good-bye.

Of the following Carrobaree song he could not give the meaning. It may serve to illustrate their ideas of metre.

Ibiruna ibaiṗlūni
Būilbirlini
ḥūranindhul mindhuloni
Bugagudi nunmunnummura
ḥei gurri.

THE BORA.

In 1862 Mr. Honery was present at a Bora held between the Barwon and the lower part of the Castlereagh River. He was a boy at the time, and is one of the very few Europeans who have been allowed to witness the mysteries of the initiation. There was a place cleared and surrounded with bushes laid as a fence, like a sheep yard. Within were three old men. About twelve youths were to be "made men;" they had been for seven or eight months compelled to eat only one kind of food. When they came to the outside of the yard, at the command of the old men they lay flat upon their faces, and were covered with a cloak. Then two of the old men came outside, the third remaining within.

The youths were called up, one at a time. Each youth, as he came up, leapt over the fence, and took up a piece of string with a bit of wood at the end, which he whirled round with a whizzing noise three times. He then jumped out, and another jumped in. While one was inside, the others remained lying on the ground, with their heads covered, and as soon as one came out, he fell on his face, and was covered up again.

A week after this preliminary ceremony, the old men all went inside, and called in the youths one at a time. As each came in they flogged him as hard as they could with a strip of bark 2 feet long and 6 or 8 inches wide. Then, with two stones, one used as a peg, the other as a hammer, they broke off and knocked out one of his front teeth, leaving the roots of the tooth in his jaw. All this time the young man uttered not a sound. He went out, and hid his head as before; and another came in to undergo the same process. For the next four days they were allowed to eat nothing but a very little bit of opossum. They were closely watched by the old men, to prevent their rambling about and perchance getting food contrary to law. At the end of four days, they were brought, one by one, into the enclosure, and were compelled to eat the excrement of old women mixed with "tao" (the root of a plant called pigwood), in basins of bark.

This revolting ceremony has been often ascribed to the blacks; some of them have strenuously denied the truth of the charge. I have no reason to doubt the truth of Mr. Honery's statement, though he is the only person who has told me that he saw it done. It may be a partial custom, limited to a few of the most degraded tribes. Coupled with flagellation and the knocking out of the tooth, it seems designed to complete the proof of manly endurance, as if they required those who aspired to the privileges of manhood, to prove their fitness by submitting, without a murmur, to the most painful and also the most nauseous processes imaginable.

After these things are done, the young men were turned out, but for three or four months were not allowed to come within 300 yards of a woman. Once in the course of this time, they make a great smoke with burning boughs, then the young men come up on one side, women at a distance on the other side. Then the young men go away for another month or so. At the end of that time they meet and take part in a sham fight, which completes the long process of initiation. From that time they are free to enjoy all the privileges of men; they may eat kangaroo, and emu, and may take wives.

NAMES.

Besides their tribal names, they have distinctive names founded on some personal peculiarity or accident. Thus "Kubbi Tdhūrū" is called Kūakumbōan, another is "ḥūluman" (bald), from the bald hill near which he was born. An "Ippai Tdhūrū" is called Dhinawurai (crooked thigh). A woman "Būtha Tahūrū," is called "Mugumilla" (blind); another woman is "Winuluvurai" (also crooked thigh, in the Burrumbinya language); another is "Wullubungabia" (grey-headed). A "Muirī" who is a king is called "Dinabukul."

CUSTOMS.

Tribes seek to increase their numbers by accessions from other tribes. They steal children from other tribes; and treat these adopted children very well. If an adult blackfellow runs away from his own tribe and seeks to join another, the young men of that tribe will try to kill him; but if the old men are present when he comes up, they will restrain the young men from attacking him, and will receive him kindly.

They practice barter; one man makes boomerangs for others, another makes spears, another opossum rugs; everything bears its maker's mark; there are curved, zigzag, and diamond-shaped marks. Such exchanges take place as an opossum rug for a spear, a fishing net for a boomerang, &c. They had no fish-hooks before the whites came.

BETROTHAL AND MARRIAGE.

When a girl is born, she is at once given by the father or mother to some man, to be his wife in due time. It is common for old men to get young girls for wives, and for old women to become wives to young men. Some young men never live with any woman. A man often gets wives, by fighting, from another tribe.

FUNERAL RITES.

They make great wailing over the dead, and sometimes keep up the nightly wail for a brother or sister, for years. Both men and women plaster their heads over with mud or pipeclay, and then cut themselves with tomahawks. At the funeral they dress up in different styles, some with head-dresses. When a fat man dies, they put his body up in a forked tree, and catch the fat dropping from him to anoint themselves; this they

suppose makes them partakers of his former health and strength. When the fat has been drawn off, they take the body down, and sometimes carry it about for years. They eat the heart and liver of the dead, in order to appropriate his virtue. They never eat a man because of enmity.

They bury most of their dead in round or oblong graves. There are burial-grounds where there are hundreds of graves. The Kamilaroi tribes cut figures on the trees round the graves as memorials of the dead.

HISTORY.

When white men first came to the Barwon, the blacks were most amazed at the bullock drays. They thought the chains were tied round the bullocks' legs, not understanding the use of the yokes. They called them "wunda," and tried to kill them, as evil spirits. When the whites fired their guns at them, they ran up to the mouths of the guns to stop the smoke from coming out, and several of them were shot dead. That was at Murrubi.

After that, they watched the white men to kill them. The first whom they killed was caught by them while milking the cows. They stuck up his body on three spears, cut him with glass bottles, found at the station, and mutilated him horribly.

Dhinabukul, a king, was a native of the Bree; he was very bold, and became powerful. After the white people came, he was very friendly with them. He sought their favour, and killed any black fellow whom they wished to get rid of.

(End of Mr. Honery's Statement.)

THE ABORIGINES ON THE PAGE AND THE ISIS.

Near the junction of the rivers Page and Isis, tributaries of the Hunter, not far from the town of Aberdeen, Mr. Macdonald, a squatter of the place, showed me the spot where the blacks held their boras. It was in a pleasant glen at the foot of one of the highest hills in the neighbourhood. On the ground is the rude figure of a man, formed by laying down sticks of wood and covering them with earth, so as to raise it from 4 to 7 inches above the level of the ground. It is 22 feet long, 12 feet wide from hand to hand, and of the shape here given, fig 1.

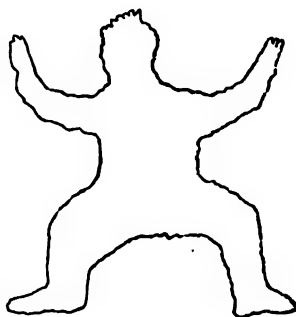


Fig. 1.

While the young men are waiting the ordeal of the bora, they are made to lie flat on the ground upon their faces, in the position of this figure. Near by is a tree bent, as is not uncommon in this country, so as to be almost horizontal for some 10 feet, about 5 feet above the ground, down a branch and along the trunk of which the blacks have cut marks like the foot-prints of an emu. When a bora is held, a stuffed emu is carried along this tree, cleverly, so as to appear like a living one, and then walks round the company, along a raised path about 150 yards in circumference. In the centre is a large fire, round about which they dance.

The young men are initiated at the age of 16 or 17. There is no knocking out of a tooth in this part of the country, nor any such revolting process as that mentioned by Mr. Honery as practised among the Wailwun tribe. But there is an ordeal of pain. They say that on these occasions their god comes down by a tree, and makes a great noise, and tosses the candidates for initiation up into the air to test them, and if they are bad he tears them to pieces. Round about this place, for a considerable distance, are about one or a hundred and twenty trees marked

with tomahawks as in the subjoined sketch ; fig. 2 is 18 inches in diameter. There are many trees marked exactly in this way ; on some the marks reach as high as 15 feet above the ground ; fig. 3 is 2 feet 6 inches in diameter ; figs. 4 and 5 are different sides of the tree, about 4 feet.



Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

MARRIAGE.

When a man wants to get a wife, he goes to a camp where there are men and women, and throws in a boomerang. If it is not thrown back at him, he walks in quietly and takes a wife ; if a boomerang is thrown at him, he has to fight Sorcerers. Their Krodjis profess to drive away rain by taking a large cinder out of the fire and beating it with a stick till it flies to pieces ; they then gather round it and shout "cooey." When any one is sick, the Krodjis come around him and sing ; they also burn the dung of kangaroos and lay it burning hot on wounds. They seek information in dreams, sleeping with their heads under logs.

VENGEANCE.

If a man steals anything the tribe kill him. If a man murders any one, they believe the murderer will pine away and soon die.

BURIAL.

In order to bury the dead, they dig a round hole like a well. They make a fire in this hole, and when it is burnt out, they carefully sweep up the ashes on a piece of bark and throw them out. When they put the dead in the hole, in a sitting posture, whatever belongs to him (spears, boomerangs,

opossum rugs, &c.) is buried with him. They lay large logs across the top of the grave, level with the ground, and roof them over with bark, on which they raise a mound of earth. They carve serpentine lines on two trees, to the north-west of the grave. They say black will rise up white fellows.

LANGUAGES.

They speak "Kamilaroi," varying slightly from that of the Namoi and Barwon. Here is a song sung at their Corrobarees.

Murrah a dai, būnmildē
 ɲa dinga dingai
 Duon dimi woldina
 Gulir bain de yē

"Bulimardyī" is something sacred; "Wunda" something awful.

TRADITIONS.

The deity who comes down at their "Bora" is very good and very powerful. He is very ancient, but never gets older. He saves them by his strength. He can pull trees up by the roots, and remove mountains. If anything attacks them he tears it to pieces.

The origin of the rivers was thus:—Some black fellows were very thirsty, looking for water; and coming to a tree with a gulagūr (opossum's hole), cut it with a tomahawk; on which rivers flowed from it.

The white cockatoo was formed thus:—A piece of white bark was taken from a tree and thrown up, while in the air it was turned into a cockatoo.

They tell of a chief who sent out some of his people to strip bark. They came back, and told him they could not get any. These men had broken the laws, and for their sin a terrible storm came down upon them. The chief took his tomahawk and stripped off a sheet of bark, and told them to get under it. They said it was not large enough. He stretched it each way, making it longer and broader. Then getting them under it, he threw it down, and killed them all. Another chief lived in a cave, and kept a dog.

ORIGINAL HOME OF THE MURRI.

The aborigines here say their fathers came long long ago from the north-west. This is the tradition told on the Barwon, 300

miles westward, and remarkably corresponds with the statement of Andrew Hume, that the blacks near the north-west coast of Australia say the first men who ever came to this continent, landed on that coast, and that the righteous and prevailing part of the population, afterwards drove away a multitude of offenders against their sacred law towards the south-east.

(End of Mr. McDonald's information.)

Language of the Aborigines of George's River, Cowpasture and Appin, that is from Botany Bay, 50 miles to the south-west (From Mr. John Rowley, of Scone, formerly resident on Cook's River, near George's River, son of Lieutenant Rowley.)

Black man, dullai [duggai is a man at Moreton Bay.]	Husband, mollimip. Wife, jinmap.
Black woman, wirāwi.	Brother, bobbina.
White man, jib agulay or jib-bagulōp.	Sister, bunnis * or wiap. Brother-in-law, jumbi.
Boy, wongra, or wangena, or wunpara.	Sister-in-law, jumbip. Comrade, mittigar.
Girl, wērōwī.	Head, kobra, or kobberā.
Forehead, kobinā.	Rain, wallan.
Eye, mai.	Thunder, murungal.
Nose, nogra.	Frost or snow, talārā.
Mouth, midyea midge, or burra.	Grass, durawi.
Teeth, tarra or terra.	House or hut, gunyu.
Ear, kurra.	Ship, murri noo-i.
Breast, nābuz.	Drink, wittama.
Stomach, bindi.	Victuals, kārndō.
Arm, minnip.	Spear (small), dūal.
Hand, buril.	Fish spear (with prongs), muttip.
Finger, berril.	Boomerang, būmarin.
Leg, mundowo, or muirdao-i.	Shield, hēlimān or hīlamun.
Semen, nallun.	Throwing stick (to throw spears), wōmrā.
Coition, nutta.	Net, rao-roa.
Cloaca, gūnārā.	Black duck, yūrānyi.
Deaf, kūrābūndi.	Hawū, būndā.
Having bad eyes, kūjamai.	

* The s here must, I think, be a mistake. Nowhere in Australia have I heard the sound s in any aboriginal word. The sound of dy (in hidyard) approaching to j, or g in Roger, is sometimes mistaken for s, so is rr. I regret to say Mr. Rowley left shortly before I received his collection of words, so that I could not consult him on the point.

Kangaroo, būrrū.	Blue shark, eon.
" (old man), wālgōy.	kao Ground shark, quibito.
Kangaroo (mountain K.), wolarū.	Schnapper, wallami.
" (black brush), wolabā.	Kingfish, wollogul.
" (red), gorea.	Flathead, kaoāri.
Horse, yaraman (from "yara," throw fast).	Mullet, worrija.
Horned cattle, kumbakuluk.	Bream, yerrermurra.
Sheep, jimbuk.	Blackfish, kururma.
Rock kangaroo, wirine or wirain.	Black snake, cherribit.
Kangaroo rat, karnjim.	Mosquito, dubig.
Native bear, kūlā.	Eel, burra.
Namesake, damolai or damili.	Oyster, bittongi.
Stranger, mai-āl.	Mud oyster, denyā.
Father, biana.	Fish, mogra.
Mother, waiana.	Lightning, māngāmāngā.
Child (baby), gury.	Earth or ground, bimmall.
Doctor (sorcerer), karrāji.	Wind, gūra.
Foot, tunna.	Canoe, naoi.
Urethra, wingi.	Club (large headed), nullanulla.
Testicle, kulga.	Club, woddi (waddy).
Buttocks, būtrā.	Spear, karmāi.
Emu, būna or quimārā.	Path or road, mūrū.
Pudendum muliebre mūndrā.	Hill, bulga.
Menstrual period, mūlāmūndrā.	Back, gili.
To make water, yilabbi.	Humpback, bulga-gili.
Big-bellied, bindimāri.	Stone hatchet, mogo.
Stammering, kūrūkabundi.	Knot of a tree hollowed out to hold water, cōlōmin.
One-eyed, wōgulmai.	Oar, narrawan.
Emu, birribain, or birabain, or murrion.	Gun, jererburra.
Blue pigeon, wonga wonga.	Smoke, kudjel.
Crested pigeon, mirrāl.	Sore, gigi.
Green pigeon, bāomā.	Sore, boil, būkā.
Bronze-winged pigeon, gotgay.	Itch, gaiball.
Laughing jackass, kogunda.	Flyblows, tullibilōy.
Cockatoo, karabi or karibi.	Opossum rug, budbilli.
Rosella parrot, būndelūk.	Egg, carbin.
Quail, maunlai.	Blood, mula.
Crow, wargon.	Paper (called from the inner bark of the tea tree, which resembles paper), kurunderug or kurundulug.
Hawk, būndā.	Bubrush, wollogolin.
Opossum, wāi āli.	Cooking, kuninmā.
Ring-tailed opossum, būkari.	Name, nante.
Ground bear, wombat.	Pity or sympathy, mudjevū.
Iguana, jindaolā.	

Dog, jünghō or dingo.	Hoarseness (in speaking), kurak
Pig, tarra mūě.	a bundi.
Sun, keün, kyun, or yiluk.	Ceremony of knocking the front
Moon, julluk.	tooth, yellā bi daiālog.
Stars, kimberwalli.	Disease like smallpox, which
Morning, winbin.	carried off many before the
Night or darkness, minni.	colony was settled, gul gul.
Water, bardo, or nījon or naijiy.	Brush† (thick wood), tuga.
Fire, goyop*.	Scrub (thick wood), jerematta.
Sea, burrawal.	South wind, tugra gōrā.
Dust (flour, &c.), duria or dirir.	North wind, yurōka‡ gōrā.

PRONOUNS.

I, naiya.	We, jumna.
You, nindi.	That, mungān.

ADJECTIVES.

Hot, yūrūka (used also for north and on the Barwon yuroka = sun).	Two, bulla (the universal Australian root).
Cold, tugra (used also for south).	Three, bulla wargul (two-one).
Large, murri, or marri (this word means great all over Eastern Australia).	or (1) wāgul, (2) bülēr or blaveri, (3) blaoweriwagul, (4) blaeriblaoweri.
Small, narap.	Four, bullabulla.
Good, Būdjeri.	Five, bullubullawargul.
Bad, wērī.	Old, kaoall or kaiun.
Brave, mutton.	Young, mūddi.
Deaf, kūrakubunni.	Afraid, jerron.
Bald (on the head), kombrukno.	Greedy, tulliz nup.
Stupid, bimuy-gārai.	Fat, gōrai.
Angry, kūlara.	Lean, wararj.
Toothless, tarrabundi.	Stinking, kūji (coogee, or bad generally).
Grey-headed, warringi kobbera.	Near-sighted (bad eyes), kūji mai.
One, wargul (at Newcastle, wākōl).	Cross-eyed, kūrāgain.

* Goyop, fire, is the same root as "koiyung" at Newcastle, "kaiyun" and "kūdān" at Moreton Bay.

† "Brush" is generally about a watercourse, the underwood is very thick and dark, vines load the branches of trees. "Scrub" is a drier and less luxuriant jungle.

‡ "Yuroka" means "sun" on the Barwon. The sun is north, not mid-day.

VERBS.

To give, togā	To burn, kunnet.
To steal, karāmā.	To swim, bōgi.
To fight, dūrella.	To drive, nalla bogi.
To throw, yanah.	To hide, tua billi.
To cry, yunga.	Look out (beware), quārḱ quārḱ.
To laugh, winna.	Stop here, wallawa.
To shout (coowhee), kumba.	Sit down, nallawilli.
To tell (make known), paialla.	To go, yan (common root).
To fish, mogra.	Let us go, nalla yan.
To hunt, wolbunga.	To squint, kuragain or kurgain.
To sleep, nangri.	Make haste, barrao (in Kami- laroi, barai).
To dance, korrobora.	To spear, turret.
To sing, beria.	Come here, quai bidja.
To die, boi (this root is found at Moreton Bay).	Run away, whū kārndi.
To take, mahan.	Come, quai.
To strike, paibao.	Run, wū.

ADVERBS.

No, bel or beal.	Yes, yuin.
Far away, wārāwārā.	Where, būwūt.
Close by, winnima.	Here, bijā.
Bye-and-bye, kārḱbō.	Away, kaundi.

PHRASES.

Tell me your name, paialla ḡaia nanti.
 Your brother, mindi (or ḡindi) bobina,
 My brother, nyah (or ḡdia) bobina.
 Strike me, paibao ḡaia.
 The baby is burnt, make haste gurup, kunut, kuai, bijā.

A hunting song about Wallaby, bandicoot, rock kangaroo,
 bush, rat, bear, and blue pigeon.

Wolba, wolba minyā mundē
 Aḡawē y kolē biroy
 Mute mutte wire
 Wungōr, wungōr
 Kolle, miroḡ
 Ato, mute

CUSTOMS.

Female children are betrothed as soon as they are born; and from that time the future son-in-law must never look at his destined mother-in-law.

During the menstrual period, women are most careful to seclude themselves, sleeping at a separate fire, and in any way avoiding association of others. The karadji or doctor, when called to the sick, warms his own foot, and then presses it on the sick, where the pain is felt.

(End of Mr. Rowley's information.)

Specimens of the language of the extinct Sydney Tride (from John Malone, a half-caste, whose mother was of that tribe).

Father, babunna.	Food, dunmijug.
Mother, guburg.	Night, purrā.
Child, chagug.	Sun, wirri.
Son, babug.	Sunshine, wiringulla or wirig kuleyes.
Daughter, gudjerug.	One, wakul.
Sister, midjan or mitjun.	Two, wākūlwākūl.*
Your father's children, babmun-derug.	Three, dūgūl
Your are mine (my daughter), gaiawulli.	Ground, murrug.
Old man, bangug.	Dog, jugug.
Old woman, mūldā.	Magpie, gurūgug.
Water, bahi.	Crow, metiba.
Fire, wē.	Duck, kundyeri.
Head, kabūra.	Black-snake, yunga.
Eyes, mē.	Deaf-adder, nyambutsh.
Nose, nūgūlbundi.	Hut, kurya.
Mouth, kommi.	Creek, turagug.
Tongue, tullug.	Sand, wetyut.
Hand, nurrumul.	Grass, bumbūr.
Knee, pūmūp.	Wind, kūmgūma.
Foot, dunna.	Boat, yeenera or bulinjug.
Kangaroo, burral.	For a wūrūgul.
	Good, kuller.

* This must be a substitute for a forgotten bū'sr, or some such word.

Opossum, kūrūera.	Bad, wirra.
Sky, dulkā.	Large, kainn.
Sea, kulpura.	Small, murrūwūlup.
Rain, bunna.	Red and yellow, kubar.
Clouds, kurrū.	White, tibuirā.
Smoke, kurungery.	Black, gūnda.
Dew, kibir.	

I see a kangaroo, pāndagū būrrū.
 Where, wutta.
 There he is, go, go, ga gullai.
 He has caught some schnapper, mānmā wūlimai.
 He killed a snake, bunmā mūdā.
 Run, come here, quick, clawā, yē, yē chōbuḡ.
 Go away, take the dog away, yunda ḡaindina mirriguḡ.
 Bring it here again, ḡaipuluḡ ḡa mirriguḡ.
 Give me some water, biniguḡ bātū.
 I will give you some water, ḡai ḡai pindwagūḡ bātū.
 Over the river, wāgū yānbāḡal.
 You must, no ! ḡindiguḡ muli, mēira.
 What do you want, mistress ? unijerunbi munkū ?
 What are you looking sulky for ? punmakūno wottowiyē ?
 You must be so disagreeable, gullai rumka wirimiguḡnin.
 Our father here will pray for us, kur aguluk tualene.
 He brought his sister home, ḡaipūlai ia mitjungun.

WODIWODI.

The Language of Illawarra.

(From Lizzie, a half-caste, whose mother was a Shoalhaven, aboriginal, and who is now the wife of John Malone).

The language formerly spoken from Port Jackson to Wollongong was called "Turawal ;" that spoken from thence to the Shoalhaven River, "Wodiwodi."

God, Mirrirul.	Sky, mirir.
Spirit or ghost, gūun.	Cloud, kurru.
White man, jiruggaluḡ.	Ground, muruḡ.
Old man, buḡgun.	Water, ḡaitḡūḡ.
Young man, yurūḡ or bayluḡ.	Fire, kanbi.
Young woman, yirawiuḡ.	Sun, bukuruḡ or wurri.
Chin, wullū.	Moon, tedjuḡ.
Teeth, irra.	Stars, jinjinuuruḡ (sparkling).
Ear, kūri.	Venus, burāra.
Hair, jirra.	Sirius, kūrūmul.

Tongue, tullun.	Pleiades, mullamullup.
Throat, kūrū.	Sea, ḡurrōwun, or kaiup.
Head, wollar or wullar.	Rain, bunna, or yēwī.
Forehead, yulu (same in Kami-laroi).	Foot, dunna.
Eyes, moburā or mēr.	Emu, biribain.
Nose, nuggūr.	Top-knot pigeon, ḡuralga.
Mouth, kommi.	Laughing jackass, kukārā.
Child, kudjaguz.	Padymelon, būlūwa.
Little child, murra kaingup.	Brown-snake, ḡūbatay.
Boy, būnbāri.	Black cockatoo, ḡaoarā.
Shoulder, kōgo.	Horse, yarāman.
Arm, murrup.	Deaf-adder, mujuwich.
Hand, murrumur. (This root all over the east of Australia.)	Native companion, ḡuradāwāk.
Thigh, turra. (A still more extended root in the forms durra, durrup, &c.)	Pigeon, wongawonga.
Nails, birripul or birnūp.	Smoke, kuruggurig.
Knee, ḡumrnu.	Canoe, yarnera or mudyeri.
Leg (calf), ḡurri.	Tree, kūdū.
Kangaroo, būrrū.	Bark, kuninda.
Opossum, kuraora.	Book, } gurrindurup.
Black-snake, -mūdār.	Tee tree bark, }
Cockatoo, yambaiimba.	Hut, kundi, or ḡurrā.
Dog, mirigup.	Road, yo-wuy.
Diamond-snake, mokka.	Spear, maiagup.
Pelican, kurupubā.	Fish-spear, kullar.
Iguana, gindaola.	Boomerang, wurapaip.
Lizard (small), dillup.	Tea tree, banban.
Fish, dun.	Iron-bark tree, bārimā.
	Swamp oak, mūmbara.
	Forest oak, wiralup.
	Honey suckle, kūrija.
	Pigeon-berry, wulugunda.

ADJECTIVES.

Good, nukkūp.	Six, wowulli bo wōwulli.
Bad, bullin.	Seven, wowulli bo wowulli mit-tup.
Large, kaiup.	White, taoerup or jirup.
Small, muruwailup or murragup.	Black, gundur.
Alive, murungulla (mōron or murun in Kamilaroi.)	Blue, gundur.
Dead, bulier or bulyar.	Red, wūrūḡūrūḡ or ḡūrūḡūrūḡ.
Awake, baitba.	Green, nuringurup.
Asleep, nungun.	Grey, yerungadā.
One, mittup, or middup.	Hot, bukurip.
Two, būlār.	Cold, maup.

Three, wowulli.	High, or far, worri.
Four, bularbular.	True, kubya.
Five, bularbular bo mittup.	False, murui.

VERBS.

Speak, kamup.	Run, jowū.
Beat, bulmugan.	Make run (causative), jomunjā.
Leave off, nawalinna.	Go down, irribā.
Lift up, kaitbaya.	Throw down, yurrēr.
Jump up, baitba.	Lie down, muzgup.
Sing, yuzgamup.	

PRONOUNS.

I, paiagup.	He, dulla.
We, nilgup.	That one, naiadulla.
You, yindigup.	

ADVERBS.

Yes, yē.	Here, yai.
No, naiyup.	

SENTENCES.

Sit down quietly, yullari jungiri.
 Take them, mundanaia.
 Go and play, yunda wargiri.
 Come here, yai yunmalup.
 Don't fight, play quietly, junbunya wargri.
 Go away, yundanaia warityuip.
 Let us go, nilgup yurriniup, or nilgup.
 I like you, gullenmigun.
 I am glad, muiyē yē.
 I am sorry, yurrumbainē.
 Give me a drink, wundumaia pummi.
 Give me some food, dunmun dieri.
 I hate you, kunnundigui or wirrunmigun.
 I will tell you the truth, putbai ēgu.
 He will come soon, yunula nulimun.
 He stayed a long time, dunuy ālle.

TRADITION.

They say that "Mirrirul" made all things. Their old men have told them that there is, beyond death, a large tree, on which Mirrirul stands to receive them when they die. The good he takes up to the sky, the bad he sends to another place

to be punished. Mrs. Malone remembers when a little child, hearing the women in the camp say to disobedient children, to deter them from being naughty, *Mirrirl wirrin munig*, *Mirrirl* will not allow it.

A VISION.

Mrs. Malone's aunt, her mother's sister, a pure aboriginal, was once in a trance for three days. At the end of that time her brother or husband (Mrs. Malone's uncle) let off a gun; on which she awoke out of the trance. She then told them she had seen a long path, with fire on both sides of it. At the end of this path stood her father and mother, waiting for her. As she went on, they said to her, "Mary Ann, what brought you here?" she said, "I don't know, I was dead." Her mother said to her, "you go back." She saw it all quite plain.

Notes from DR. CREED, M.L.A., of SCONE, on the ABORIGINES of the NORTH COAST.

Dr. Creed accompanied the expedition round the North Coast of Australia, in the steamer "Eagle," in 1867, and has furnished the following information concerning the aborigines.

CAPE YORK.

The natives at Cape York call themselves *Gudaj*. Westward of that tribe are the *Kokiliga*; south-west of the *Gudaj* are the *Ondaima*; and due south, are the *Yaldaigan*, who have almost exterminated the *Gudaj*.

All these tribes have canoes with outriggers, which they have obtained by barter, from the islanders between Australia and New Guinea. Each canoe is cut out of one log of wood, then one side is heightened by a board sewed on with strips of cane, (rattan). These people have no boomerangs. Their weapons are spears, some heavy wooden spears, others light, made of reeds and thrown by means of the *woomera* (throwing stick). The *Gudaj* fish for turtle by means of spears with large bulky shafts. When the spear is driven into the turtle, the shaft, being of small specific gravity, floats on the surface. It is

connected by a rope of twisted bark with the spike. They also catch turtle with a noosed rope. They dive and catch hold of a flapper of the turtle, slip the noose over it and drag the turtle to shore. They also employ a remora for this purpose. Having made fast a line to the tail of the remora, they let him go among the turtles. He makes direct for a turtle, and fastens upon it by the suckers on the back of his head. The men then draw in the line, and secure their prey.

The Gudaj wear no clothes, but on their heads they have wigs. They smoke a herb that grows there, with bamboo pipes obtained from the islands. They consider it a greater injury to be struck than to be killed. The first disturbance with the natives at Cape York arose from the flogging of a black fellow who had been caught stealing. And when Mr. Jardine, P.M., proposed to flog a boy who had behaved ill, the boy's father said, not from want of affection, but from abhorrence of the indignity of a flogging, "No, but kill him."

The Korariga, the people who inhabit the Prince of Wales Island, north of Cape York, use bows and arrows, which they obtain by barter from islands further north. The Korariga had a European living with them for twenty years. He is supposed to be a Frenchman. He made fish-hooks for them with iron obtained from wrecks. The Gudaj have spears made with a piece of bone pointed at both ends, and lashed to the end of the shaft, so that one end of the bone forms the point of the spear, and the other serves as a barb. When this spear sticks in the flesh, the heat melts the gum upon the lashing, and loosens the bone from the shaft, so that the bone is left in the flesh.

There is no cultivation at all on the mainland of Australia, nor on any of the islands this side of Warrior Island, near the coast of New Guinea. The people live chiefly on yams and fish. The Malays come down with the beginning of the N.W. monsoon in December, to the Australian coast for trepang, and return in March by the S.E. trade wind. There is some barter between them and the natives. The party in the "Eagle," found at Cadell's Straits, an Australian black fellow, who had been with the Malays to the Dutch Colony in Java. Many of the people along the coast have iron tomahawks, obtained from the Malays, some have also spear heads of iron. One came off to the ship with tortoiseshell for sale; they also offered young women for sale, as if they had been so many kangaroos. On the Bligh River, three or four hundred blacks came swimming and wading towards the "Eagle;" when the steam-whistle was sounded they were cowed, dived and retreated, but after a while one old man came to them, offering them twelve young girls of 16 or 17 years. Some of the men in several tribes were

circumcised, but in no tribe was the practice general. Even as to knocking out the front tooth, a thoroughly Australian rite, there were many exceptions. In summer they use no hats. In winter they make huts of sheets of bark, about 30 feet long and 6 to 8 feet wide. Inside one of the huts, Dr. Creed saw, drawn on the bark with charcoal, figures of animals, and of guns, the latter designed evidently to convey to other blacks an idea of the weapons carried by the white men. At one place they found platforms about 8 feet high, made of saplings, for sleeping on. On some parts of the coast they make canoes of pieces of bark sewed up at the ends, and kept in shape by a frame-work of sticks inside. But the canoes in general use are obtained from the Malays, and have keels.

They make weirs of stakes to catch fish. Besides several species of the finny tribes, they catch crabs, and get oysters. Yams are their staple vegetable food; they also eat the root of a water-lily (*nymphæa*). At Cape York they eat turtles and turtles' eggs. Tobacco, for smoking, has been introduced among them by Malays.

They are very careful of the blind, of whom there are many. These they supply with abundance of the best food, and lead about with great attention. The dead are buried, in some cases at all events, in clefts of the rocks.

On the Roper River they saw a conical-shaped hut, 8 feet high, thatched with grass, there was nothing inside. The blacks there told them that there was a white man, with a very long beard, living thereabouts, who was then gone a fishing. Dr. Creed received from them a spear-head, wrapped carefully in native canvas. They told him any one pricked with this would surely die. Some of the people there were pitted with marks as if of smallpox.

The man who seemed to have chief authority on the Liverpool River, was Kālili, a young man, and a splendid mimic.

The people on Sweer's Island and on Bentinck Island, are stunted in growth, and wretched in appearance. They have no canoes.

In the hope that these fragmentary illustrations of the speech and thoughts and ways of the ancient race of Murri may be deemed an acceptable contribution to the materials of Anthropological science, I place them at your disposal.

I have, &c.,

PADDINGTON, SYDNEY,
21st July, 1873.

WILLIAM RIDLEY, M.A.

Copy of further Communication from MR. MACKENZIE.

GUAYAMIN.

Wenkin yanilla mārumbuliŋgo; "kūri maundtharūlinga, wurrumbra; mārūm minamūgōlo, thunnumbarūnyidtha." "Ji! birikūlumbra yenna. Miḡāli, miḡāli, miḡāli, māra, māra, māra!"

"Iuanga nenjiwata, wēritbumarangiāna Pullir yabunyarimal-laoramarumburai. Pūlinda minilla māra braganga, tethungaykūro mūdāla. Nūngailaora naiagagūli jiḡa!" "Wanjawan juanga gubiḡa paiup indigagūti!" Nūngailaora; ithungro, kūnambūlo ilialōlo, thogunko Nūngailaora, ah, ah, ah, ah! Navainyella Guayaminji yandthavalolo "Wurrin nūngāna, yandthaoga Purrimaigūna yanila yakupa Guayamina, yambūla waungāla meriraji, nyambāla thogun yenna "Kawai-i; Guayamin wurrija-nya," "Karrindthabaūllawa wurrumbra nyello yūin, wenkin, wurrin, miriga, pijur. Minimbarā no mundabain, pairinidtha, minimbarila yakūpa yuin kummai, mūdabain kullāra, kūjūro, minimburabūilla yakūpa Bingāla wenkin, yuin, wurrin, pijur Minailūlo wurrumbra, waukurara thokaialulo, unniguro yunambarila yanila yakūpa Hūlālawa yakupa, mūdabain jergālawa banda kunamūlawa, kutāra kūlālawa. Ya paialla Guayamin "tungurkurri, kulitkurriwa kurkurriwa." Ilimbarilyana birimbura kūlaliyena yuinji, wunnumbūlilawa Nagamrarai Karugāmbila Guayamin "mudjeriḡa bunguthitha!" Mudjeri tharatkila! nya, nya, nya, "Yai, yai, yai! wir, wir! bukara yenāna. Wurrainji ḡawavgun, kurawunda, purrinji pa ḡulai" Bungathilla yakupa, purilla wunnamila yakūpa, wurri wurriḡalwāla. "Nadjinkaila mudjeri kana, purapunyillupa, mūrūkaiāli" ḡamadtha kūrawunda, ḡulai purrainji. "Ya paiallina," ḡuragunḡawē nyuna yenawuka "Yenaila yakupa wurri thavāli thogun dunno. Iirapurilla nummo yanila thogunda. Nunnaridtha jiamūno yandthaonidtha ḡaianji, munijambramimmo jirapurikolo" "Miḡai mumijambrā yendthanolo, numma ḡaiir baoweriḡo jirapūlo." Hoū Yanilla wurri ḡaiamo, nyulla," Wudthaoro undaji?" Minilla karuga "Thukaia jimbalumna; mudbo nyerra ḡundi, ḡundi! kalitbundtha laora nyi murrilaora ḡundi Mimnibarila yakupa Guayamin wurrainji "Pulla, pulla, pulla, pulla! Bingala bauwērino, jurup Yabumbililla mulidthagana. Mithunathalo yarrurikūla, yanaila Guayamin thogumkunno. Nangai la wanda, Kurungambila mundijanbaraono." Thunnumbarinabagunga. Eh nangaiuga ithullabumbatijalūiloga."

I nanamūlawa kuruyi banda "Ya pukeriy-myā makulla

Yellibunila yakupa, kunaiala maiyur" A-a-ai, ban kunana kuwai!" Kutthila yakupa Guayamin, milidthu minilla ban irinula yakunji kunilla yakai, yakai, yakai, yakai! thunnadtha, joali kunnaiwoniga warranoga." Warrailamunya māna wurrin-burritbunthimbula yakunyo waori kaiadtha bānda kuna-millowa.

GUAYAMIN.

A woman went to fish. "My two boys, wait for me at the rock. I'll catch you fish. We'll eat them."

"There are two yellow-tails for us, our mother has got fish. This fish is mine, we'll play with them."

The fish slipped out of their hands. The younger took the fish, the elder took it away. They began to cry; "that's my fish;" "no, that's yours, the little one." They cried. Their mother took them to the camp. They cried all day. Guayamin came for them. Children are crying. I must go to Purrimai. Guayamin went all the way. He rose up on top of the hill, looked down on the camp. "Oh dear! there's Guayamin." They covered up the children with men, women, children, dogs, cloaks; brought tomahawks to kill Guayamin, brought spears, tomahawks, fish-spears, clubs, they brought all these. He threw to one side women, men, children, cloaks. He got the two boys, put them in the net, lifted them on his shoulder, went away with them. They tried to spear him, cut him with tomahawks, burn him with firesticks, pierce him with the fish-spear. Guayamin said, "All your weapons break, all your spears." They took a band of warriors, left him at Nagannarai (Crookhaven heads). Guayamin called out, "bring the canoe." "The canoe has a hole in it, look! look! look!" "Come! come! come! make haste! make haste! the sun is going down. I'll give you boomerang, necklace, waist-tassels and sash." He paddled over to him, he jumped out, he put him across to the other side (Guayamin looked round to the canoe). "The canoe is dry, we have come across dry, you told a lie." "Give me the necklace, sash, waist-tassels." He said, "you told a falsehood, I'm going away." He went right away to his camp. He put them upon a nummo, went to the camp. "You two tell my mother-in-law to go over there for my two meats. I put them on the nummo." "Mother, you go and get the two meats; your son-in-law has put them on the nummo over there." "Ay!" she went away, looked. "Where are they?" She took the bag, "they're not here, see here, the net! Look! look! they've broke it, they've run away." Guayamin took the boomerang. This way! this way! this way! this way! He threw the boomerang, the old woman stooped down. He flung once more,

Guayamin went to his camp. They might be asleep. He was vexed about the meat." I should like to eat now. Oh! I must sleep, I'm hungry," They made a fire right round him. It is hot weather, getting summer." The fire approaches, scorches him. "Oh dear, the fire burns me!" Guaymin leapt about, pushed away the fire with his shield. "Oh! oh! oh! oh! my feet! they're killing me outright with fire! I'm dying!" He dies. He would have devoured all the children, only for the fire burning him.

Version by aboriginal of the Jerry Bay tribe.

JERRA THARŪMBA TŪTAWA.

"Yanaons marungo, mudgeririwunno, niaga mundijoy maia-mboga, ma Korūgamadatha." "Ḥaiai!" "Mundija wudthathungi? matha Ḥurūwoga thungi-Kanoga nyellanji Kailupo. Unanji tharinnowa, kolga, imur, worringu, bumbunowa!" Wandthola bukkunda, thunbūla mudjikūrup, warri thunganungo; pindāla ūmungo; minilla kumma, wommir, warri yarillanya; thurranthurra kanijilli. Murrindajallila, kulitbunilla kumma, bujambila iranū-Thubbundthella Tutawai; warri thūlibūrūnkūro; gūjina pullāra; thalibujila wakārup yamudtha Ḥaiunji-Būngamillala Ḥanduyunda kummawal; warri kūrāra kumma jurāila; jirumbunyla warri bingala. Thurila Tutawanya, murrundthila, kūdū minamūla, murrundthila, paiilla kul! paigula Kobbu, warri wankarrain. Jirrainji būngutbula pūnanji; yanillanya warri thogundtha-Maiilla, yūnbra ilimburlaora māranji kunnan-gai, Ḥamallaora-Maiillowa; jamilūlū "būngutbūlaga kolga, jiia yandthaonyi." "Jakwaialiga, yanaonyi nēnjina" "Jin darana bānyena." Yirimala, Ḥurumbud-jinula, minillaora bāngo, igallaora, Ḥarinyuga jergallaora, benjinu Ḥamillaora mariwa Tutawa.

A Tharumba Story. TUTAWA.

"You go fish, you that have canoes, I look about for meat, for there's a westerly wind." "Very well." "Where's the meat? for I'm looking long. I'll try on that flat. There they are standing, a buck, a doe, and young one, all three." He crept on the ground, went behind the bushes to their foot, rose on his knee, took spear and throwing-stick, and threw, speared him in the ribs. He bounded away, he broke the spear, the prong stuck fast, Tootawa followed far to a little waterhole, too shallow (for the kangaroo to take refuge in). He (kangaroo) came out on the shore just over there, stooping down. He fitted the spear to the wommir, it entered deep into the shoulder, came out at the breast. Tootawa stood, went to him, got a stick, went to him,

struck him, whack! struck him dead. He fell on the ground. He covered him with bushes and little logs, went away to the camp. He sate down, two blacks brought him fish ready cooked, and gave to him. They sate down. He told them "I've covered up a buck, we'll go for him." "I'm ready, we'll go for him now. You kindle a fire!" They gathered wood, lighted a fire. The two held him to the fire and singed him, cut off the two legs, gave the guts to the game-killer Tootawa.

Version by Noleman, aboriginal of the Wandandian Tribe.

Jerra Tharumba.

TŪTAWA, PŪLŪNGŪL.

Wunna, pūrū minilla wanēkundi Tutawanyella; Kuritja-bunjila, ililla thōgunko; Kunamimbūlilla! gūbija mirigambila; jukundai murrundthila Pūlungūl; Ħarinmadthai, jambinūro mundija Kunda bundilla. "Bu! Pūlungūl, Ħarinma Ħarao-undtha." "Mundija yandthaono binyāro!" "Ħurawunko bunga-iluwa thaorumbrao, Bungaluwa Ħurawan, Tutawa pūrūrūngāla, pū-rū-rū-rū-rū. Būthūlāla Tūtawai thulinyo: thitbūlo wakāra, gua, Ħurawan, kurrū, Kūrūgama yanaila; yaukupa "Kūwai-ai-ai! Pūlungūl! Kununga-lūni yai yāukāra, Ħarinma Kunnum-baithali mundijain-purajain. Niruna bunna, Kūrūguma! "Bithai-gala Karugāndthilla Pūlungūl," Pūlungūl, wunnamakoin yaowē!" "Bu! indygāga bundūgan jinna." Pūlungūl Karāmbīla. "Wunnama narūga, wunnama narūgaa!" Yanilowa yakupa wankao. Yerrimbūlo, jella, jella, jella, jella; jīik, jīik, jīik, jīik, yapoilla warri wakārain: jellajellunkawēdthū kudjir wurrakain-Yaowalli pūrapūndo, kūnyū, bethaigal, pa kūna, pa tora, pa mūnda, pa mara. Jurabawūlara birura, birrimbaimin, Jurabai-wunnaora māra, numbulo, jeriwan taora yakūnjo waoari-Kūmari yenna thukia, kaor-Bunbilla Ħurawan Tūtawai punyirimūla kumariwaindo yakūnjo waoari, bimira, gua, Ħurawunda, kurrū; yibundaiddo yakūnjo waoari.

The oven-hole, Tootawa brought the kangaroo out of the oven-hole, carried it on his shoulder, took it to the camp, roasted it, gave a little to his dog, and carried the biggest part to Pooloongool, brought stinking meat to his father-in-law and brother-in-law. "Hush! Pooloongool, your son-in-law will hear you." "Go for meat, bingara." They paddled to the sea, the whole party. They paddled to the sea; Tootawa jumped about with rage, jump, jump, jump, jump, Tootawa split his tongue, spate the blood west, south, east, and north. The west wind came. They said, "Oh, dear, Pooloongool, you must try to get ashore

with us. You said a bad word this morning to your father-in-law about the meat. Look at the rain and the wind!" The pelican called out to Pooloongool, "Pooloongool, come here, I'll put you in my canoe." "Get along! I'll carry you in *my* canoe." Pooloongool was getting drowned. "Put me in the canoe, put me in the canoe!" Those went to the shore. The musk duck bailed the water out of his own canoe, dip, dip, dip, dip, drip, drip, drip, drip; went that way to the shore, flapped the lake all the way. They dived and came up again, the black shag, the shag with the white breast. They dive now for the fish, they fish, they feed in the water all day long. There was no wind in former times, all was calm. Tootawa brought all that wind that's blowing now all the time from the west, south, east, north, it blows now all the while.

Version by Hugany, aboriginal of the Wandandian Tribe.

TERRA THARŪMBA.

WUNBULA.

Nadjijajoy, Murrumbul, Mündtha.

Yanilla Kolumbri yētbupillawa Kollyāga Mūpai; Thogun yenna; yanillawa bunguto; "nyeminya-mauro; iribaoga mirigandtha, wenkinbra, Murrumbul, Mundtha." "Thunnamapāli kunjawōtuyāla; tukaoga, yanuiṇa warri thogundtha." Jīṇa yamnjāna warri; jīṇa tharar. Ijella tukalinga Murrumbula pa mugai." Jirilla munduga mūngāla; mändthilla jirai kūmirgū-rigo; minilla mirigano warri pūnanjiwōna; mijilla jerai tharar; yanilla Jhurri thogundtha. "Yanaonyi Jhiunko weukinbra." "Pukerinji, jurabaonyi." Yanillawa wurrigāla. "Ma! jurabaona Jatenwalla yaoalia, naiaga tūlunya." Kūlala jerabaddi yaoalia Jatēnwalla; jerumbaddi murrilaora merēro. Munaoraggarila; yaoalia yuinyumbūlo Wunbūlērla.

A THARUMBA STORY.

WUNBULA. *Three stars in a line in the constellation Canis Major.*

The Bat, the Brown Snake, and Black Snake.

He went away from Columbri. Passed Collijaga to Monga Camp there. He went to look for wombat. "There it is, you stop here. I'll go in with my dog, my women Murrumbul and Mundtha." "Our husband makes us tired taking us about, we'll shut him up, we'll go to the camp." That fellow went in far; that fellow came back. "Those have shut me up, Mur-

rumbul and Mundtha." He heard the fly buzz, waited for him going out at the little hole, took the dog a long way under his arm, went outside, went right away to the camp. Let's go for *ngaium*,* women. "Its hot, let's bathe." They went close to the bank. "Come on, let's bathe, you on one side, and you on the other, I in the middle." The jerumbaddy† spear then on this side and that. The jerumbaddy were sticking up. They went to join the Munoura‡ Wunbula their husband on the other side.

Version by Noleman, aboriginal of the Wandandian Tribe.

DISCUSSION.

Colonel A. LANE FOX drew attention to some customs which appeared to resemble those of the Andamanese, and also to the questions raised upon the discussion which took place on a former occasion relating to the use of the bow by the natives of Cape York. It appears by the evidence of Dr. Creed, that the inhabitants of the Prince of Wales' Island, Cape York, use bows, which they obtain, not from European traders, but from islands farther to the north.

Note on the AUSTRALIAN REPORTS from NEW SOUTH WALES. BY MR. HYDE CLARKE.

In reference to the position taken by Prof. Huxley as to his three black groups in Australia, India and Africa, it may be interesting to state that according to the evidence here given, the elements of culture are the same.

The language of Australia conforms to the aboriginal languages of Africa, and these latter to those of India. In the Journal of the Institute will be found the papers of the lamented Dr. Bleek.

A good illustration is afforded by the words for axe :—

Australia.					Africa.	
Yundu, <i>Kamilaroi</i>	..	..	..	..	Yondo, <i>Nkele</i> .	
Gana .. ..	..	..	..	..	Kuno, <i>Gbandi</i> , etc.	
Batiyu .. ..	..	..	..	..	Putewi, <i>Pepel</i> , etc.	
Gi . . . .	..	..	..	..	Go, <i>Dewoi</i> , etc.	
Nogo .. ..	..	..	..	..	Ogo, <i>Uaso</i> .	

* The larvæ of the ant, which are eaten by the aborigenes.

† Barbed spear.

‡ The constellation of the Pleiades.

The probability is, that these are among the pre-historic words used for the stone weapons, as the words for club and spear are those for wooden weapons.

The animal names are of the same origin. Those of the beasts, contained in these vocabularies, are nearly all to be found in Africa. The names of the kangaroo, kangaroo-rat, opossum dog, etc., are found in those of the dog, rat, and monkey.

New South Wales.		Africa.
Kangaroo, burru	..	Rat, mpore, <i>Bumbete</i> ; bera, <i>Houssa</i> ,
murui	..	„ domuru, <i>Pulo</i> , etc.; monkey,
		emere, <i>Bini</i> .
bandan	..	Dog, gbandi, <i>Gurma</i> ; boandi,
		<i>Undaza</i> .
wolaru	..	„ wulu, <i>Kono</i> , etc.; rat, wolu,
		<i>Kaure</i> , etc.
wolaba	..	„ olombua, <i>Pangela</i> .
gorea	..	„ kura, <i>Yala</i> , etc.; rat, guru,
		<i>Okuloma</i> .
Kangaroo-rat, karnimin		„ karnei, <i>Houssa</i> .
Opossum, kuraki	..	Rat, ikeriku, <i>Igala</i> , &c.; kereku,
		<i>Opanda</i> .
kuraora	..	„ akura, <i>Ashantee</i> .
bukari	..	Monkey, koara, <i>Mendi</i> , etc.
Bear, kula	.. ..	Dog, galu, <i>Marawi</i> , kale, <i>Houssa</i> ,

Some of the snake-names show conformity:—

New South Wales.		Africa.
Snake, dharu	.. ..	Snake, ntare, <i>Niere</i> .
munun	..	Fish, monga, <i>Pangela</i> .
		Snake, mone, <i>Mano</i> .
mokka	..	„ omagena, <i>Pepel</i> .
nyambuch	..	„ nome, <i>Aukaras</i> .
Eel, burra	.. ..	Fish, ombera, <i>Pangela</i> .
Fish, dun	.. ..	„ ndon, <i>Melou</i> .

The Kamilaroi paper of the Rev. C. C. Greenway is valuable for its comparative notes, and affords us some equivalents.

Thus the limbs of a tree include the arm, as with us, but a thick branch is a thigh. The applications of the human terms may have something to do with the notion of a Dryad. The leaf sometimes equals tongue, and the bark, skin.

White man equals demon or spirit, the first white men having been taken for spirits. Mr. Greenway says that bukra among the Africans has the same meaning.

Spear in Australian, as in some other languages, equals tree, wood, and honey, as in Africa, equals bee.

The evidence now accumulating, shows more copiousness of language in the pre-historic epoch than has been allowed for. There is a poverty and a richness, sometimes one word for three or four ideas, but as a compensation, three or four words for one idea.

A curious example is given by Mr. Greenway, two words are used for ear and hear, but these are interchanged in the several dialects.

As the pre-historic languages of America conform with those of the other regions, we have to allow chronologically for the universal diffusion of successive emigrations, and for the wide space by which the members are now separated.

The dissimilarity now observable in the Australian dialects arises from independent development carried over a large epoch, and the phenomena are conformable to those which occur in the animal world as displayed in natural history.

JUNE 26TH, 1877.

JOHN EVANS, Esq., D.C.L., F.R.S., *President, in the Chair.*

The Minutes of the previous meeting were read and confirmed.

The election of the Rev. F. S. Davis, of Godalming, Lieut. Fox, R.N.R., Penang, and Dr. Messer, R.N., as members of the Institute, was announced.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the ACADEMY.—Atti della R. Accademia dei Lincei, Vol. I, No. 6.

From the EDITOR.—Matériaux pour l'Histoire de l'Homme, May, 1877.

From the ASSOCIATION.—Journal of the East India Association. Vol. X, No. 2. The Eastern Question in its Anglo-Indian Aspect, by Rev. J. Long.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXVI, No. 180.

From the ASSOCIATION.—Proceedings of the Geologists Association Vol. V, Nos. 1 and 2.

From the EDITOR.—Revue Scientifique. Nos. 51 and 52, 1877.

- From the AUTHOR.—The Tribes of the extreme North West, by W. H. Dall.
- From the AUTHOR.—Pre-historic remains found at Cincinnati, Ohio, by Robert Clarke.
- From the ACADEMY.—Proceedings and Transactions of the Cracow Academy of Sciences.
- From the AUTHOR.—The Natural History of the Straits of Magellan and West Coast of Patagonia, by Prof. R. O. Cunningham, M.D.
- From the AUTHOR.—*Studii Craniologici sui Cimpanzé*; Odoardo Beccari ed I suoi viaggi; *Cenni Storici ed Etnologici di un popolo estinto*. 2 parts. *Istruzioni per lo studio della psicologia comparata*; *Studi sulla Razza Negrita*; *Nel cuor dell' Africa*, by Enrico Hellyer Giglioli.

Mr. Burt exhibited the figure-head of a New Zealand war canoe, supposed to have belonged to the canoe which met Captain Cook on his second visit to those islands.

Mr. G. M. Atkinson exhibited a piece of gold so-called Irish ring money, and an ancient ring.

The President made some observations on these exhibitions, and thanks were returned to the exhibitors.

The Director then read the following paper, which was illustrated by a small model of the object referred to.

AN UNDERGROUND STRUCTURE AT DRIFFIELD, YORKSHIRE.

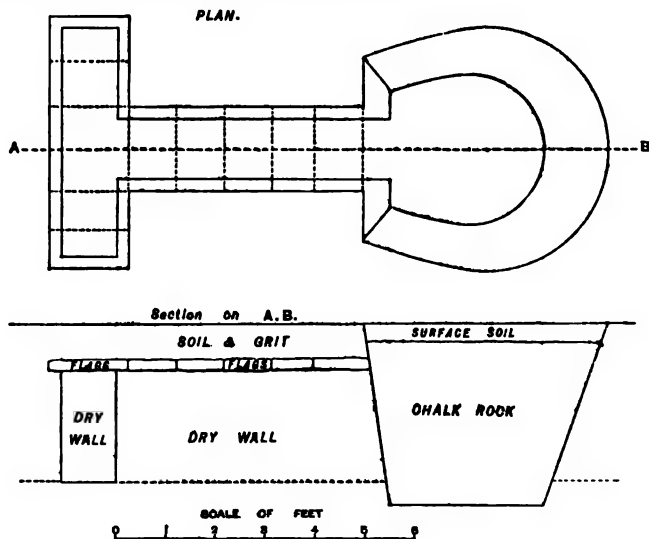
A VERY remarkable underground microlithic structure was recently discovered on elevated ground, about one mile southwest of the village of Langtoft, and seven miles north of Driffield.

On November 15, 1875, the son of Mr. H. Wilson, of Langtoft-field, whilst making stakeholders for a sheep-fold, found that his gavelock sank suddenly into the ground. This very unusual occurrence induced him to procure tools and dig down. At a depth of about 18 inches he came upon some flat chalk stones forming the roof of a hollow trench. The trench was neatly walled in with two parallel walls of chalk built without any kind of mortar or cement, about 13 inches apart, 5 feet in length, and 2 feet in height.

It contained nothing but one or two inches of dark sooty matter lying on the bottom, in which were a few small bits of burnt wood. On the morning of November 17, Mr. H. Wilson made this discovery known to me, and in the afternoon I visited the place. It is situated on the northern brow of an elevated chalk range running nearly east and west.

I observed that Mr. Wilson, junior, had explored for a short

distance a branch of like form and construction running north at right angles to the original opening from its centre. After personally exploring this passage, which was also roofed in with slabs of chalk, and contained a stratum of dark matter at the bottom, I found that after a distance of about 5 feet it ran into a somewhat circular cavity, excavated 4 feet in the chalk rock, some 3 inches lower than the passage.



The cavity measured 3 feet in diameter at the bottom, and 5 feet at the top; its sloping sides were formed by the naked rock, and there was no trace of any covering stones as in the passages. On the bottom was an accumulation of the dark sooty substance already mentioned, fully 6 inches thick, containing portions of carbonised wood, a nail-shaped bit of iron, and fragments of three vases known as Roman ware; some of which were much flaked and splintered as if by the action of fire. The remainder of the cavity was filled with rubbly chalk mixed with soil, in some places showing traces of burning, containing portions of animal bones burnt.

The walls of the passages or flue-like portions of the structure showed deep traces of the action of fire. The surface soil, of gritty texture, 18 inches in depth, contained potsherds of a bluish colour, and unburnt animal bones, amongst which we recognised teeth of the pig, sheep or goat, and portions of the horn-core of the ox.

The day after our exploration, Mr. Wilson, junior, pulled down the walls, which averaged 12 inches in thickness, and found that

the heat had been sufficiently intense in certain places to pass through the wall and redden the packing of soil behind.

A similar structure to this was discovered in the summer of 1874 on one of Lord Hotham's farms at Etton, near Beverley, in the occupation of Mr. Whipp. The discovery was made known by Dr. Stephenson, of Beverley. It was visited at the time by the late Mr. C. Monkman of Malton, and by him described in the "*Malton Messenger*" as a "Bortontinus formed of two parallel walls of chalk and sandstone, 11 feet in length and about 2 feet high, the hollow space or trough being nearly 2 feet wide, and showing many traces of charcoal and burning. The roofing was of slabs of sandstone, bearing marks of fire. Mixed in the soil over and around it were a large quern or millstone, animal bones, and many fragments of pottery, seemingly of Roman date." These, the account goes on to say, "are deposited at Lord Hotham's mansion at South Dalton." Mr. Monkman adds, "this structure was discovered while ploughing, and the opening was unfortunately carried on through motives of curiosity alone, and its true form was not satisfactorily made out."

From Dr. Stephenson's account, however, and that of others, who saw it when first discovered, I find that there were clear indications of a third arm running in a northerly direction, and ending in a dish-shaped excavation in the rock.

These descriptions show clearly that the Etton find was in every way similar to the one since discovered on Langtoft Wold, except in point of size, the Etton one being the larger of the two. Whatever may have been the use of these (so far as I know) unique structures, the fragments of pottery found in them seem to fix their date somewhere between the first and fifth centuries. That they were not "Bortontini" there is little doubt.

It is hardly probable that the Romans would form such structures for land-marks and then cover them up.

They may be the remains of small potters' kilns, or possibly a kind of oven or cooking-place.

But most likely these rudely constructed underground flues were used (after the Roman mode of heating rooms), as hypocausts for warming some humble dwellings of the Romanised peasantry of the neighbourhood. The millstones, potsherds, and bones of animals scattered in the soil above and around the flues, seem to bear out this surmise.

In conclusion, I trust by making this communication, to induce others to put on record their knowledge of any similar structures in other parts of our island.

The President and Mr. Brabrook, F.S.A., remarked on the above.

Mr. Carmichael, F.R.S.L., than read the following paper.

A BENEDICTINE MISSIONARY'S ACCOUNT *of the NATIVES of AUSTRALIA and OCEANIA.*

FROM *the ITALIAN of* DON RUDESINDO SALVADO. (ROME, 1851.) *By* C. H. E. CARMICHAEL, M.A.

WE are indebted to the Press of the College of the Propaganda in Rome, for the work which forms the subject of the present paper.* With a considerable portion of the volume, of which the courtesy of Her Majesty's Secretary of State for the Colonies has enabled us to estimate the value for Anthropological purposes, we are not directly concerned. Writing for a general rather than a scientific public, and with a view to exciting interest in the Australian missions, in which he had borne no small part, Monsigr. Salvado necessarily devotes many pages either to matter with which we are familiar, such as the history of the rise and progress of our Australian Colonies, or to subjects more immediately connected with his missionary work. The general impression, I may remark, which is left upon my mind by a careful perusal of the more purely scientific portions of the book, is that, so far as his personal observation extended, the accounts given of the aborigines by Bishop Salvado are trustworthy, although I might be inclined to suggest the allowance of a certain margin for the favourable view likely to be taken of a race which yielded the first two children to the family of St. Benedict from "Terra Australis." The seat of the mission of New Nursia was in Western Australia, north of the Swan River, in the diocese assigned to the Roman Catholic Bishop of Perth, in 1845, when the ecclesiastical separation from Sydney took place. The company of missionaries of which Don Rudesindo Salvado was a member, seems to have been very mixed in its nationalities. At the head was the new Bishop of Perth, Monsigr. Brady, an Irishman. Next came Don Serra and Don Salvado, both Spanish Benedictines; then Don Confalonieri, from the Italian Tyrol, followed by three French Priests, another Irishman, an English sub-deacon, a French novice, and a Roman, while the student catechists, and the Sisters of Mercy, who accompanied the mission, were all Irish.

* *Memorie Storiche dell' Australia, particolarmente della Missione Benedettina di Nuova Norcia, e degli usi e costumi degli Australiani, per Mgr. D. Rudesindo Salvado, O.S.B., Vescovo di Porto Vittoria. Roma, Tip. S. Cong: de Prop: Fide. 1851.*

Sailing on the 17th September, 1845, from Gravesend, it was on the 7th January, 1846, that the cry of "land" was raised, and the ship which bore the Benedictine Mission cast anchor in Fremantle Bay.

Landing in Australia entirely ignorant of the language of the aborigines, the method adopted by the missionaries was to write down in a pocket-book every word of which they found out the meaning. The first word whose repetition struck them was "maragna,"* which they discovered to mean "food." And the first opening of friendly relations with the natives, on the foundation of the mission station of New Nursia, was due to the offering of bread and sugar, by which the amicable intentions of the Benedictines were made manifest to the native intelligence. Indeed, Don Rudesindo repeatedly affirms the necessity of providing missionaries with means to clothe and feed would-be neophytes, and to reclaim them from a nomad life. "What you tell us may be true, very true," says the native, "but I am hungry, will you give me some bread?" And if the missionary could not give it, the native would turn his back at once upon Christianity and civilisation. The Benedictines appear to have found the natives ready to work, for they owed the completion of their mission-hut to the help which was willingly offered after they had once established confidence by means of "maragna."

The feelings of gratitude and affection seems also to have been drawn out by the missionaries. After curing some of their native friends, they received the expression of their gratitude in a shape that must have been somewhat trying to the gravity of Benedictine monks. "We are altogether yours," said their late patients, "our wives are your wives, our children your children, all that we have is yours." The principal medicines used are stated to have been salt, English tea, and rice, and fortunately, they always seem to have acted favourably on the sick, so that the missionaries were on thoroughly friendly terms with the natives. They did not hesitate to interfere between them when they saw two parties about to fight. Sometimes the mere presence of the missionaries stopped the intended conflict. When, as happened at other times, the passions of the contending parties were too much roused to admit of so easy a pacification, the monks placed themselves, crucifix in hand, between the two sides, and let the darts hurtle by them until they brought about a truce.

Though often consenting only with a bad grace, the natives

* The word sounded suspiciously in the ears of the Spanish monk, for in his native Galician dialect it happens to mean "deceit." "Memorie," p. 168. "Maragna nel mio dialetto Gallego significa inganno."

never either absolutely refused to give up their weapons into the hands of the missionaries, or fled to avoid giving them up. Their ill humour found a sufficient vent in repeated leaps into the air, and loud cries.

The first attempt made by their diocesan to visit the mission-station of New Nursia proved a failure, through the Bishop losing his way in the scrub. Upon this Don Rudesindo remarks that although Europeans who lose their way may not see a single native, they are constantly observed by numbers hidden in the bush, who watch their every movement, but never think of coming to their assistance, because it does not occur to them that the white man cannot find his way as easily as themselves.* This seems a probable explanation of what might otherwise be set down to suspicion of the European.

In regard to their religious beliefs, the Benedictines found their native friends singularly and obstinately reticent. If they inquired of a young man, even though he might be more than thirty years old, he professed to be too young to be able to tell them anything, and recommended them to ask the old men. When the elders were questioned, they answered with jests, or pretended not to understand. The most favourable time for talking unconstrainedly with the natives, and learning something from them, was found to be the evening meal, when the men return from the day's chase, sit round the camp fire and tell stories like the Arabs. "These," says Monsignor Salvado, "are moments worth many months of tramp among the scrub to the missionary who knows how to make use of them." Eventually, the way was found by Don Rudesindo to make some investigations into the question whether his neighbours believed in the immortality of the soul. His procedure was as follows.† "I am not one," he said to some of the natives, "as you think, but two." Upon this they laughed. "You may laugh as much as you like," continued the missionary, "I tell you that I am two in one: this great body that you see is one; within that there is another little one, which is not visible. The great body dies, and is buried, but the little body flies away when the great one dies." To this some replied, "Caia, caia (*i.e.*, "yes, yes"). We also are two, we also have a little body within the breast." On asking what they called this little body, the answer was "Càcin." Then they were asked where the little body went after death, to which various answers were given; some saying behind the bush, others into the sea, and others again that they did not know. Don Rudesindo very wisely did not press the natives further on this occasion, knowing how tenacious they

* *Op. cit.*, p. 196.

† *Op. cit.*, pp. 208-9.

were of the secrecy of their beliefs. But on a subsequent occasion he heard the legend of "Càcin" from some other natives who were on confidential terms with him, and he gives its substance in the following words.*

When a native dies, his soul remains on the branches of a tree,† singing mournfully like a bird, until someone takes her up. When it is known that a soul is going from tree to tree, the natives approach, bent and in single file, beating two little sticks against each other, and making with their voices the sound "ps, ps, ps." Often the soul remains among the trees; but sometimes it comes down, and enters the mouth of the nearest native, remaining within him if he is alone, but if there are others, passing out at his back, through the next, and remaining in the last man.

From the accounts given him by one of the natives, named Bigliagoro, who became attached to the missionaries, Don Rudesindo acquired the conviction that in cases of extreme hunger the Australian aborigines are anthropophagous. By the close of 1848, the Benedictines heard no more of this custom, and hoped that they had succeeded in putting an end to it, as well as to the killing of the third or fourth child by its mother. The natives no longer fled from the white man, but even sought permission to build houses for themselves and their families near the mission station. Of the honesty of the Western Australians the missionaries evidently entertained a very high opinion, never having experienced any losses either of goods or cattle at their hands, and having always found them zealous in going in quest of any cattle that had strayed. Speaking generally of the impression which appears to have been made upon Monsignor Salvado and his companions by the aborigines among whom they had lived, it is in favour of the possibility of raising the Western Australians to a fairly high pitch of civilisation. The idea of the Benedictine missionaries concerning the best means to begin efforts in this direction, was to make their station the centre of an agricultural and industrial village, in which the natives should dwell, each family receiving from the missionaries what was necessary to start them in work on their own account. So the Benedictines hoped they might eventually see around them a village of pro-

* *Op. cit.*, p. 209.

† With this idea may be compared that of the Land Dayaks of Upper Sarawak, of whom, in a paper under that title in vol. iii of *Memoirs* read before the Anthropological Society of London (Longmans, 1870), p. 199, Dr. Houghton says, "The Dayas (*sic*) believe very dimly in a future life; they say the soul is changed into a spirit, *which hovers about the hills and places in the jungle*. These spirits are objects of fear and superstition. Customs are observed on account of them." (The italics are mine, not the author's.)

prietors of land, tillers of the soil which they owned, or rented, and also artisans, so far at any rate as the needs of the village required. This, no doubt, would be, as Don Rudesindo truly observes, a work of years, but it would be a work not unworthy of any missionaries, and would add a fresh title of honour to those already assigned in the pages of history to the illustrious order of St. Benedict of Nursia, for many centuries famed for its protection of learning and civilisation in Western Europe.

Besides the details scattered through the main body of the "Memorie Storiche dell' Australia," Monsignor. Salvado gives further information in the last part of his volume (p. 277 *et seqq.*), from which I shall add a few extracts, so far as they are the result of his personal observation.

In Western Australia the Bishop says that he never met more than one native who was black. Their hair he found in the west to be not woolly (*capelli lanuti*) but smooth (*lisci e biondi*), and often so fair that it would have been envied by a native of Northern Europe.*

He observed this fair and smooth or glossy hair also in a native of the eastern portion of the continent. The Bishop's testimony on this point is rendered stronger, I cannot but think, by the fact, incidentally mentioned, that he had constantly washed and combed the hair of the natives, amongst his varied missionary labours.

As to the probable numbers of the Australian aborigines, Monsignor. Salvado will not venture upon a guess. But whatever they be, he sees with regret that they are rapidly diminishing. This is, indeed, so much the case, that at a meeting of the Anthropological Society of Paris in 1872,† shortly after the reading of M. Topinard's Paper on the Australians, a member quoted the following extract from an English colonial newspaper, the "Australasian," of Melbourne, under date 16th December, 1871, given as an item of news: "A wild man has been seen in the Inigeva Ranges." And as long ago as 1845, the report of a Select Committee on the condition of the aborigines, published in Sydney, gave statistics which are quoted by Monsignor. Salvado,‡ showing that a tribe in the

* Monsignor. Salvado was probably thinking of the Scandinavians when he wrote this sentence. But it may be worth while to note in connection with it an assertion made by Virchow, at a meeting of the Anthropological Society of Berlin, to the effect that in certain parts of Finland, where there is no trace of any immigration, there are inhabitants so fair as to have given rise to the proverb "as fair as a Fin." ("Revue Scientifique," 2nd January, 1875, p. 642.)

† *Bulletins de la Société d'Anthropologie de Paris*, Tome vii (II^e Serie), p. 420.

‡ Report, &c., Sydney, 1845, pp. 1-2, quoted, *op. cit.*, p. 281.

neighbourhood of Sydney had dwindled from about four hundred to four, viz., one man and three women. Why the Australian race should have died out at such an excessively rapid rate after the settlement of the European colonists, is not, I think, quite obvious from the account of it given by the Benedictine missionary. I should be inclined to think that his estimate of the power of the race and of the position which it is capable of filling, may be somewhat coloured, however unconsciously, by the apparent success of his mission.

When Monsignor. Salvado speaks from his own personal knowledge of the physical and mental characteristics of the natives, whether of the western, northern, or eastern parts of Australia, with whom he had come into contact, I think his statements worthy of acceptance as those of a careful and intelligent observer. But I am unable to reconcile the indubitable fact of the total extinction of one portion of the Australian race,* viz., that which inhabited Tasmania, and the extreme attenuation of the numbers on the mainland, as testified by authoritative sources of information, with the relatively high estimate of their capacities formed by Don Rudesindo. Perhaps a solution may be found for this difficulty in M. Topinard's view of the co-existence in Australia of a superior and an inferior race. It would then be quite according to analogy that the inferior race should die out before the European, and that the superior race should remain, only perhaps receding more and more into the interior as the European advanced. Indeed, it might be questioned whether the expression cited by Monsignor. Salvado from Byrne's "*Emigrant's Guide*,"† that such and such tribes of three or four hundred souls had "disappeared" within ten years, is not as consistent with simple retirement into the interior, as with disappearance by death. But it is only fair to Monsignor. Salvado to state his argument in reply to the objection that education has been tried with the Australian and has failed. To this he replies that a purely intellectual education alone has been tried, and that after the savage had been caught in his childhood, and sent to school, where he learned to read and write, and even to perform some of the operations of arithmetic with unexpected rapidity, he has then been taken by the shoulders and thrust back into the bush, where he finds that reading and writing will not enable him to satisfy his hunger.

* I leave this phrase as I originally wrote it, notwithstanding some criticisms passed upon it in the course of the discussion, because I hope to return to the subject and show that there is some authority for its use in the ethnological sense which I had in view. Meanwhile, it may be taken by its opponents in a purely geographical connotation, to which there can be no objection, I conceive.

† "*Emigrant's Guide*," p. 70, quoted in *op. cit.*, p. 281.

Now although intellectual education is one of the constituents of civilisation, in the case of the savage it ought to be a secondary one. The first step, continues the bishop, should be to give the Australian the power to supply himself readily with the means of existence through a knowledge of agriculture and the simpler crafts, and afterwards to open his mind to learning, and the outer polish of civilised society. This is in accordance with the system partially carried out by the Benedictine himself, and it seems, *mutatis mutandis*, to have been adopted with good results among a much lower race, the natives of Tierra del Fuego. In that wildest and bleakest part of the American continent, a mission station, established by the English Bishop of the Falkland Islands at Oostrovia, on the Fuegian coast in 1868, has, we learn, increased from a single hut to a settlement of more than one hundred Fuegians, while it is resorted to at certain seasons of the year by several hundreds of the natives.*

As to the quickness with which the Australians learn their letters, Monsignr. Salvado bears a very decidel testimony. He states that one of the boys whom he taught learned in ten minutes forty letters, partly capitals, partly small text, of various types, comprising five different kinds of letters. Another boy, after a few lessons, would repeat backwards or forwards any numbers composed of from two to nine numerals, augmenting them in succession, but not progressively. A third, of about the same age as the first (unfortunately it is not stated what this age was), learned some arithmetical operations in a few weeks, although the numbers known to the natives do not go beyond three. From a captain of a ship, the Bishop heard of an Australian lad, not yet ten years old (non ancora bilustre), who from merely seeing the master take his meridian with a sextant, accomplished the experiment himself successfully, and repeated it several times in the presence of many persons, to show that it was no mere chance. This last incident of course did not occur within Monsignr. Salvado's own knowledge, but what he does vouch for is sufficiently remarakable to suggest a doubt whether the influence of the "glorious Patriarch St. Benedict" may not sometimes have been supposed to intensify the mother-wit of the pupils of the mission of New Nursia.

But throughout his work, Don Rudesindo asserts the great quickness and intelligence of the Australian race. The acuteness (*perspicacia*) of the natives, he says, is so great, that they read in the face the wishes of those who are conversing with them, and answer their questions, even, it would seem, on trivial

* "Pall Mall Gazette," 22nd June, 1877.

matters, as they think the interrogator desires. If asked whether it is likely to rain the following day, or not, instead of answering in accordance with their experience, they reply as they think the questioner wishes.

Two letters, written by natives of Western Australia, whom Monsignor Salvado took to Italy with him in 1849, and placed in the great Benedictine Monastery of Trinità di Cava, seem to me worth recording in our Proceedings, as specimens of the mastery over writing in a European language which can be reached by this race. The first, written soon after their arrival in Europe, when they were, it is stated about (forse) eleven years old, is couched in short, imperfect sentences, and exhibits the use of the infinitive, probably the first part of a verb which they learned, both for the imperative and indicative. The second, written a year later, displays very marked progress. I am only afraid that it is a little too perfect for the time that had elapsed between the two letters, and I should like to be certain that some of the good monks of La Cava had not touched it up, before sending this specimen of their pupils' progress to the guardian who had placed him under their charge. It is only fair, however, to mention that Monsignor Salvado professes to transcribe both the letters faithfully (*fedelmente*). They are, perhaps, the first of the kind brought to the notice of the Institute.

Letter I.

Carissimo Rudesindo, molto noi piace ricevuta lettera tua, e molto noi piace state bene. Noi molto pregare Dio per Australiani e voi. Perchè tu niente venuto monastero luna nuova? Tu venir subito subito a noi fare grande piacere. Noi stare bene assai e contenti. Io Francesco studiare bene; Giovanni così così, ma sempre portare meglio. Tu baciare piede Papa, per Francesco e Giovanni Padre Maestro tutti tre. Tu pregare per Francesco e Giovanni a messa. Noi volere una figura pure. P. Maestro baciare mani te, e tutti miei compagni. Noi baciata lettera tua, baciata mano te e dona benedizione.

CAVA, 25 *Ginguo*, 1850.

FRANCESCO CONACI,
GIOVANNI DIRIMERA.*

Letter II.

Illustrissimo Monsignore, Con sommo piacere ricevemmo la vostra carissima con la data Luglio per mezzo della quale conoscemmo che stavate bene in salute, lo stesso vi assicuriamo di noi. Speriamo che le vostre faccende vi lasciassero libero

* "*Memorie*," pp. 293-4.

almeno pochi giorni, affinchè potessimo avere la consolazione di rivedervi e baciervi la mano. Per darvi un attestato della mia condotta nello studio vi rimetto un decreto, che ebbi nei saggi pubblici di Settembre insieme alla medaglia di argento col grado di moto bene, la qual le tiene conservata il P. Maestro. Vi ingraziamo dell figurine di santi che ci avete mandate, e vi preghiamora e portarci un libretto di orazioni dove vi sia il preparamento per la SS. Comunione. Vi bacciamo caramente la mani e fanno lo stesso e miei compagni, specialmente D. Silvano; e chiedendovi la santa benedizione mi soscrivo.

CAVA, 18 *Luglio*, 1857.

Vostro Affmo. in Cristo,
FRANCESCO SAVERIO CONACI.*

To the question, what is the religion of the Australian aborigines, Monsignor. Salvado gives an answer based, as he tells us, on close study of the subject during three years of mission life at New Nursia. The conclusion at which he arrived is that they do not adore any deity, whether true or false. Yet he proceeds to tell us that they believe in an Omnipotent Being, creator of heaven and earth, whom they call Motogon, and whom they imagined as a very tall, powerful, and wise man of their own country and complexion. His mode of creation was by breathing, *e.g.*, to create the earth, he said, "Earth, come forth," and he breathed, and the earth was created. So with the sun, the trees, the kangaroo, &c.; unfortunately, the Bishop does not mention whether he had told the natives the Mosaic account of the creation before they gave him this version as their own. Montogon, the author of good, is confronted, according to Monsignor. Salvado's report, by Cienga, the author of evil. This latter being is unchainer of the whirlwind and the storm, and the invisible author of the death of their children, wherefore the natives fear him exceedingly. Moreover, as Motogon (possibly worn out by his goodness) has been long since dead and decrepid (the epithets are those supplied by Monsignor. Salvado, and I do not pretend to explain how a dead person, or spirit, can be decrepid), it is no wonder that they no longer pay him any worship. What is remarkable, however, says Don Rudesindo, is that, although the natives believe themselves to be afflicted with calamities by Cienga, they do nothing to propitiate him. The Bishop's words on this point are unequivocal, and all the stronger from his evident surprise. Never, says he, did I observe any act of external worship, nor did any indication suggest to me that they practised an internal worship.

When a sudden thunder storm comes upon them, they raise

* *Op. cit.*, p. 294.

hideous cries, strike the earth with their feet, imprecate death and misfortune upon Cienga, whom they think the author of it, and then take refuge under the nearest trees. The Bishop, who is here evidently speaking from recollection of such a scene, says that he remained out in the storm, rather than shelter himself under the dangerous cover of the trees; but the natives assured him that the lightning never struck the bent and twisted (*tortuosi*) trees under which they took refuge. And this the Bishop found to be the case, so that it may be said of the Australian native, that there is a method even in his seeming madness. One day the Bishop met a young girl after sunset, standing still in terror, because she said that Cienga was on a neighbouring tree, looking at her. The Bishop, thinking it might be a bird, threw some pebbles at the tree, and finally took the girl's hand, and led her towards it. Before reaching the tree she cried out in a loud and glad tone of voice, "there he goes." But the Bishop saw neither bird nor demon. The general belief, he says, is that Cienga prowls about at night among the trees, and for this reason the natives can scarcely be got to stir from their fire after sunset. Only mothers who have lately lost a child will brave these dangers to go in quest of its soul, and if they hear the cry of a bird in the bush, will spend hours there calling upon it, and begging it to come to them. So strong is the Australian mother's love.

If a native is killed by a thrust of the "*ghici*," a wooden spear, about 9 English feet long, and pointed at its thickest end, his countrymen think that his soul remains in the point of the weapon which caused his death, and they burn it after his burial, so that the soul may depart. They think that the soul feels the night chills, and therefore light large fires after the burial, and sometimes keep them up for about a month.

They believe that anyone who dies from sickness dies under the influence of their medicine men, whom they call "*Boglia*," and whom they believe to be able to kill at great distances. This power to slay is considered to reside in certain stones in the stomach of the "*Boglia*," and to pass from father to son among that class.

They regard the sun as a friendly, the moon as an unfriendly power. They consider the moon to be masculine, and the sun to be its consort. The moon is accompanied on its passage through the heavens by numerous hounds, whom it sends on the earth to procure it food. When it comes down itself for food it often carries off the children of the natives, but is compelled by the sun to restore them. They abuse the moon in the very strongest language they possess. They think that the stars are married, and, like the sun and moon, have large families. They believe

the stars are offended at being named ; the morning star they call "Tonder." They seldom mention the names of the dead, and then only in a low voice (*sotto voce*).

To cause rain, they tear off the skins that they wear, and breathe upon them, so as to blow them in the direction from which they want the rain to come. When they wish to stop rain, they set fire to a piece of sandal wood, and strike the ground sharply with it. They are afraid to drink water at night from any large pool, because they think it the habitation of the great serpent Uócol,* who will kill them if they drink. Monsignor. Salvado found that they would not go, and at first they would not tell him the reason. At last one native said to him, "if we go and take the water we shall be killed ; if you go you will not be killed." Seeing that some superstition was at the bottom of this terror, the Bishop went towards the water and quenched his thirst, the natives following him in a row (*tutti in fila*), and in silence. When he had drunk as much as he wanted, and moved away from the pool, the natives immediately called out to him to stop. In going home they ran ahead of him in a body, so that he should be the last ; and when he scolded them for their foolish belief, they answered him scornfully, "you know nothing about it." For fear of this same serpent Uócol, the natives never bathe in pools whose dark colour is a sign of their depth, as they say he lies at the bottom, and they dread him even in daylight.

Concerning the native system of government, Monsignor. Salvado thinks the ordinary application of the word tribe, which many people, he says, apply to any body of more than half a dozen natives, is inaccurate. According to the researches which he was able to make, each family is an independent society, governed by its father or head, and he was unable to perceive that any such head claimed the right to command other chiefs, or those subject to them. If a native is injured, he himself takes vengeance, and if he is weaker than his enemy, calls upon his relations and friends for help. According to Bishop Salvado, therefore, the Australian aborigines live under the family rather than the tribal system. Although each family is subject solely to the laws of its own chief in most matters, there are yet certain

* A somewhat similar superstition regarding the occupancy of pools and swamps by a gigantic serpent, is related of the Indians of the Mosquito Territory, in a paper by Mr. John Collinson, C. E., in vol. iii of the *Memoirs* read before the Anthropological Society of London, p. 153. "These mythical reptiles are called wowlahs, and are believed by the natives to inhabit certain out-of-the-way swampy pools and marshes, where they grow to an enormous size, live for ever, and have the capability of swallowing a canoe full of men at a time. No Indian will stop near their supposed abode for fear of arousing their anger, and so compassing his own destruction."

laws of general application, which might be termed laws of the community, in so far as the aggregation of families in a loose sort of tribal federation may be held to constitute a community beyond the limits of the family. There is, for instance, a general law that no young man shall marry under thirty years of age, and if one confess that he has done so, he may be killed by any of the eders who hates him. It might have been expected that under such a system land would have been held by the family, rather than the tribe, or the individual. But Monsignor. Salvado asserts that each individual has his own portion of land, where he may hunt and gather gum and roots. "Often," says the Bishop, "have I heard a native say to another, this is my country, yours is Canturbi (a place near New Nursia), go away." But here, I think, there is a contradiction in the Bishop's own language, as well as an inexactitude, for immediately afterwards he says, "each family, therefore, forms, as it were, its own peculiar and exclusive district, which is used in common by other neighbouring families who are at peace with it." What the Bishop's testimony seems to indicate is family ownership, as distinguished both from tribal and individual ownership. It is an adverse possession, for if a stranger or an enemy is found within its limits he is put to death. But I think the Bishop's language is consistent only with the conclusion that the individual has not yet emerged among the Australian aborigines, and that the ownership of the soil is in the family. Of the language of the natives, Monsignor. Salvado says that it possesses both the gravity of the Spanish, and the softness of the Italian.

The general similarity of the language* in different parts of the continent, leads him to believe that all the dialects spring from a common stock. He also believes the race to be one, while M. Topinard and others have argued strongly in favour of the existence of two races in Australia. In their poetry, says the Bishop, there is a repetition which would be irksome to us Europeans, while to the Australians it is a source of delight. Some of their songs are improvised as occasion gives rise to them, but others have been handed down by traditions, or have

* In proof of this similarity and original identity, Monsignor. Salvado adduces at p. 304 the following table of the words for hand and eye in various parts of Australia:

	New Nursia.	Perth.	King George's Sound.	Adelaide.	Sydney.	Moreton Bay.
The Hand	Mara	Mara	Nur	Mara	Mura	Mara
The Eye	Miel	Miel	Mill	Mena	Miel	Mill

come from distant parts, so that it happens not unfrequently that the musical motive alone remains, while the words of the song have been altered. When a native returns from some distant part of the country, he brings back with him some of the songs which he has learned among the tribes whom he was visiting. If he likes them he sings them in their original form, but if he does not like them he is apt to change both the words and the air, and make them ridiculous. Their war songs rouse them to frenzy; their laments move them to tears. For the hunt and the dance they have songs that make them merry. They accompany their singing with the clash of arms, and with the same accompaniment they mark the rhythm of their dance. Of the songs of the Australians, Monsignor Salvado does not* give us any specimen, but he quotes one fragment of a funeral song of the natives of Oceania, which may not unfitly conclude my brief and, I fear, imperfect summary of the Benedictine Missionary's interesting volume.

"The time that remaineth is a perpetual night unto us,
The sun that cheered us is eclipsed.
The moon that lightened us is darkened.
The star that led us has vanished.
We have lost our all.
What will become of us without the glory of our land?
Our life henceforth will be a burden to us."

DISCUSSION.

Mr. CORNELIUS WALFORD suggested that the dying out of the native race referred to in the paper, was not necessarily due to contact with civilisation. Other influences came into operation. It was indeed stated in the paper that the natives killed their third child if it chanced to be a female. He assumed from that fact that polygamy did not prevail with the race in question. Polygamy and infanticide combined would reduce the population of any country. Under such conditions more girls than boys would be produced; and if the female children were killed off, of course the numbers must in time die out. Again, where the means of subsistence were precarious, small families were regarded as a necessity. So too in countries where property was divided equally among all the children. The parents in such cases thought two children, to take the place of themselves when they died off, were sufficient. But those who were familiar with the law of mortality, knew that in order that two children might survive their parents, something like an average of four children in each family would be needed—two would die off in their parents' lifetime; the other two would survive, and take the place of their parents. France, by a neglect or disregard of this fact, presented, at least in the towns,

* *Op. cit.*, p. 14.

a decreasing population. The country districts compensated by having larger families; and so the population of the country was prevented from going backwards. In France indeed the smallness of the families was not due to the scarcity of the necessities of existence, it was rather due to the luxurious tendencies of the people, coupled with the law regulating the division of property among all the children of the family equally. It was remarkable to see the opposite conditions of savage life, on the one hand, and the refinements of luxury on the other, leading up to the desire for limitation of families, and so operating, in the end, to the restriction of population. He considered the paper a valuable one, and threw out the preceding suggestions with a view to its main features being properly considered.

In reply, Mr. CARMICHAEL said: That he thought Monsignor Salvado attributed the decrease in the numbers of the Australian aborigines rather to habits of intemperance, and to diseases acquired by contact with Europeans, than to the custom of infanticide in certain cases. With respect to the tenure of land, there seemed to be a confusion in Monsignor Salvado's language, which led him to doubt whether the individual, in the judicial connotation of the word, had emerged as an owner of the soil among the Australians. Monsignor Salvado certainly maintains the unity of the race as well as of the language, while Topinard and other foreign Anthropologists believe that they have found in Australia signs of the co-existence of a superior and an inferior race.

The ETHNOLOGY of GERMANY.—PART 3. By HENRY H.

HOWORTH, F.S.A.

The MIGRATION of the SAXONS.

THE Saxons are first mentioned by name by Ptolemy, who wrote about A.D. 90. He tells us that the Frisians occupied the sea coast beyond the Busacteri (*i.e.*, the Bructeri) as far as the River Ems. After them the Lesser Kaukhi as far as the Weser, then the greater Kaukhi as far as the River Elbe; then on the neck of the Kimbri Chersonese, the Saxons. Then on the Chersonese itself, beyond the Saxons, the Sigulones, on the west; then the Sabalingii, then the Kobandi; beyond whom the Khali, and even beyond these, more to the west, the Phundusii; more to the east, the Kharudes; and the most northern of all, the Kimbri. And after the Saxons, from the River Khalusus to the Suebos, the Pharadini. (Latham's "English Language," 42.) In another place he speaks of three islands situated near the estuary of the Elbe and called Saxon, the largest of which was in long. 31° and lat 57°. Let us examine these passages carefully. Ptolemy tells us the Pharadini

lived beyond the Saxons, between the River Khalusus and the Suebos. Zeuss says the Khalusus can only mean the Trave ("Die Deutschen, etc.," 150); and it seems to me that it must be either the Trave or the neighbouring Swentina. The Suebos, he suggests, and is followed in doing so by Latham, is the Oder (*id.*, 154, Latham's "Germania," cxxix); but Ptolemy has a special name for the Oder, namely, the Wiados, and it is quite gratuitous to suggest, as Zeuss does, that he has blundered in using the two names (*op. cit.*, 154); and I believe the Suebos is the Warnof. This is more probable, because the Trave and the Warnof are to this day the political boundaries of a famous old State, namely, Mecklenburgh. This is, however, a minor difference, and there can be no question that Mecklenburgh, whether as far as the Oder or not, was the country defined by Ptolemy as that of the Pharadini. Zeuss has argued that Pharadini is a corruption of Spharadini, and would connect the name with the Suardones. (*Op. cit.*, 154, note.) But this is very far fetched, and the postulating of corruptions is an unsatisfactory method, and especially when, as in this case, the true solution seems so obvious, that one cannot understand how it has been overlooked. This district was the old homeland of the Varini, and traces of their name are no doubt to be found in those of the district of Wagria, and of the River Warna which gives its name to Warnof and Warnemünde. Now Pharadini is merely another form of the name Varini, which varied a good deal; the indigenous form being almost certainly Varing or Waring, and the important root-syllable of the name being Var or Phar; and I have no doubt that the Pharadini of Ptolemy are the Varini of other authors. This view is confirmed by the fact that it makes the eastern limits of the Saxonland of Ptolemy coincident with those of the Transalbingian Saxons of mediæval times. We thus limit the Saxons on two sides, namely, on the east by the Swentina or the Trave, and on the south-west by the Elbe. Let us now examine their northern neighbours. From the fact that the Eyder is not named by the classical authors, it has been urged that it was then a tributary of the Elbe, or rather that both fell into a common basin; and we know that the whole coast of North Friesland has been greatly shattered by inroads of the sea. Ptolemy's position for the mouth of the Elbe is in fact where the Eyder falls into the sea, namely, one degree north from the mouth of the Weser, and three and a-half south of the northern point of the Danish peninsula; while he plants the three Saxon islands of which he speaks, one degree from the mouth of the Elbe, and so far northwards that Heligoland must have been the most southerly; and he separates them from

other Cimbric islands, which he calls the Alokian Islands. ("Die Gens Langobardorum," by Friedrich Bluhme, pp. 8-9.)

Let us turn once more to Ptolemy's description. He tells us that beyond the Saxons, on the Chersonese itself, and on the west, lived the Sigulones. The River Eyder was known in mediæval times as the Egdora, and the letter G in this form seems to be a euphonious addition. It may well be the same in Sigulones, and we then have the name Siulones or Siyulones; and it is very satisfactory that in regard to this name I had quite independently arrived at the same conclusion as Dahlmann. In the descriptions of Otheres' voyage, there is mention made of a district of Sillende, which as Porthan and Dahlmann agree, meant the present Duchy of Schleswig, otherwise known as South Jutland or Schleiland; and in the anonymous "Vita Hludovici," and also in Eginhardt, sub ann. 818, we are told how the soldiers, when they crossed the Eyder, came into a district called Siulende. (Dahlmann, "Forschungen," 437-9; Hampson, 36.) The same district is called Sin Jutia by Petrus Olaus, and answers to the modern Duchy of Schleswig.

I have therefore no hesitation in identifying the Sigulones of Ptolemy with the inhabitants of Schleswig, and we are thus enabled to fix tolerably accurately the original homeland of the Saxons in the time of Ptolemy as conterminous with the district of Holstein. While the three Saxon islands are very probably to be identified with three of the islands of North Friesland.

As we know from subsequent notices, the Saxons were essentially an aggressive and warlike race, and given to pushing their frontier and elbowing out their neighbours, and there is no reason to believe that this faculty was first developed in the fourth century. It would seem, on the contrary, from their not being mentioned by earlier writers than Ptolemy, especially by Tacitus, that they were new comers into the district of Holstein when Ptolemy wrote. I hope to try to trace them to their earlier seats in another paper of this series. As I have said, their country in the time of Ptolemy was Holstein.

When we next hear of the Saxons, we find them making descents upon the coasts of the empire. We will first consider their attacks on the borders of the English Channel.

This question has been well treated by Schaumann in a tract which lies before me, entitled "Zur Geschichte der Eroberung Englands durch germanische Sätmmе," Göttingen, 1845. He tells us the Romans named the whole north of Gaul which bordered on the Bay of Biscay and the English Channel Armorica, a name of Celtic etymology, meaning situated along

the sea; and the name was apparently in use among the indigenes before the Romans arrived. "Universis civitatibus, quæ Oceanum attingunt, quæque eorum consuetudine Armoricæ appellantur" (Cæsar, VII, 75). This use of the name, according to Schaumann, still survives; peoples peaking of "l'Armorique de Plougerneau." (*Op. cit.*, 5.)

The tractus Armoricanus of the Romans apparently connoted the whole strip of country on the coast from the Loire to the Scheldt. More lately it was divided into five provinces, thus described in the "Notitia Dignitatum Imperii," a work apparently composed in the time of the Emperors Arcadius (382-408) and Honorius (390-423). "Extenditur tamen tractus Armoricanus per provincias quinque, per Aquitanicum I et II; Senoniam, Lugdunensem II et III." (Schaumann, *op. cit.*, 5-6.)

It would seem that during the third century this tract was subject to piratical attacks from Saxons and Franks, and it was placed in charge of an officer named "the comes maritimi tractus," a kind of "warden of the Cinque Ports," whose duty it was to command the local militia and the local fleet, with his head-quarters at Gessoriacum, the later Bononia or Boulogne.

The most important of these commanders was named Carausias, who was appointed by the Emperors Diocletian and Maximian (287-96.) (Lappenberg, 1, 44.) He is called a Batavian by Eumenius, and a Menapian by Aurelius Victor. As there was a Menapia in Wales as well as in Belgium, some of our annalists make Carausius a Briton, and this has been made the subject of much ingenious writing. But there can be small doubt he belonged to Menapia in Gaul, and was perhaps of German or quasi German origin. The fullest account of him is given by Eutropius, who wrote about the year 360 A.D. He tells us that Carausius, who was a person of ignoble birth, who, having created a considerable military reputation, was given the command at Boulogne, with the duty of protecting the coasts of Belgica and Armorica (*i.e.*, the northern seaboard of Gaul), from the attacks of the Franks and Saxons, who then infested that coast. He made many captives, but as he did not return the booty which he recaptured either to the people who had been plundered, or to the emperor, suspicion arose that he was in league with the robbers, and that he allowed them to escape. And Maximian having ordered him to be put to death, he made himself emperor, and took possession of Britain. (Mon. "Hist. Britt.," lxxii.) The same story is told by Orosius, *id.*, lxxix and lxxx.

Carausius was a much more important character in western history than is generally supposed. It would seem that as guardian or count of the maritime district, he had charge of

both sides of the Channel, both being infested by the pirates, and both being protected by one Channel fleet. As Mr. Dircks says, the country on either side formed one "littus," one government, entitled *comitis maritimi tractus*. (Dircks, "Les Anglo-Saxons et leurs petits deniers dits Sceattas.") The command of the Channel and the fleet made him absolute master of Britain when he raised the standard of revolt there. He was also wealthy enough to buy the allegiance of the local legions. M. Genebrier has calculated, from a study of the numbers of the legions on his coins, that he could command an army of 64,000 men. (Dircks, *op. cit.*, 15, note 2.) He adopted the title of Augustus, defeated the troops of Diocletian and Maximian, and constrained them to resign to him the government of the country he had conquered. And coins were struck with the heads of the three emperors on their obverse, that of Carausius radiated, the other two bare, and having the inscription "Carausius et fratres sui" on them. (Dircks *op. cit.*, 14, note 1.) He retained his power for about seven years, and was assassinated about 293 by Allectus, who only kept his position for three years, when he was in turn overthrown by the troops of Asclepiodorus, the general of Constantine.

The ten years' usurpation had, however, left its mark on the western world. Carausius was apparently on terms of close friendship with the Saxons and the Franks; and while we read in the pages of the panegyrist Mamertinus, how Maximian drove a body of mercenary Franks from London, we do not read of any attacks from the Saxons during the usurpation; nor did they apparently dare to make many descents during the reign of the succeeding powerful emperors. We have, in fact, to pass on nearly a century before we again meet with them.

The author who next names them is Ammianus Marcellinus, who flourished about A.D. 380. He describes how about the year 364, the Picts and Saxons, the Scots and Attacots ravaged the coasts of Britain. (*Op. cit.*, Bohn's trans., 413.) Four years later he tells us that the Picts were divided into two nations, the Dicaledones and the Vecturiones, and that while they with the Scots and Attacotti were ravaging one part of Britain, the Franks and Saxons who lived on the frontiers of Gaul, were also ravaging the country wherever they could effect an entrance by sea or land, plundering and burning and murdering all the prisoners they could take. (*Id.*, 453-4.) Here it will be noted that the Saxon attacks are specifically said to have been made by invaders from the borders of Gaul.

The same author tells us that in the year 360 a vast multitude of Saxons burst forth, and having crossed the difficult passage of the ocean, made towards the Roman frontier by forced marches.

The first brunt of their attack fell upon the Count Nannenus, a veteran general of great merit and experience. He was wounded in the struggle, and asked for assistance of the Emperor, who sent Severus. According to Ammianus the Saxons were so disconcerted at the brilliant appearance of the standards and eagles, that they implored peace and pardon. This was granted them after some discussion, one of the terms being that they should supply a certain number of young men for military service. They were then allowed to withdraw to their own country, on leaving their baggage behind; the Romans, with the basest treachery, having agreed to their terms, planted an ambuscade in which they expected to entrap the unwary strangers; but some of their people were too eager, and the Saxons being warned in time, fell upon them with a terrible yell, and committed a dreadful slaughter. Another body of Romans however, came to the rescue; the battle was renewed, and was fought desperately. None of the Saxons, says Ammianus, returned home, for not one of them survived the slaughter; and although, says the candid historian, an impartial judge will blame the action as treacherous and disgraceful, still if he weighs all the circumstances, he will not regret that a mischievous band of robbers was at length destroyed, when such an opportunity presented itself. (*Id.*, 493-4.) I am afraid posterity hardly endorses the complacent conclusion of the Roman historian, and will be apt to say that when the coasts of the empire were presently harried most bitterly, and their towns burnt, that it was not without ample provocation. One important fact mentioned in this paragraph, to which attention must be attentively directed, is that we are told the Saxons when they made their descent on the empire, came by sea, and after a long voyage. This is surely consistent with their having come from Holstein and the borders of the Elbe, but not with their having come from Nether Saxony, which at no point touches the sea.

Ammianus Marcellinus again mentions the Saxons a few years later, and tells us how about the year 374 they attacked the empire with extreme ferocity, making descents in every direction where they were least expected, and penetrated into the inland districts. They were, he tells us, attacked by Valentinian, and destroyed, but again by treachery, and he recovered all the booty which they were carrying off. (*Id.*, 567.)

Our next author is the poet Claudian, who flourished about the year 400. In his panegyric on the fourth consulship of Honorius, A.D. 398, he says:—

"Quid rigor sternus cæli, quid sidera prosunt,
 Ignotumque fretum? Maduerunt Saxone fuso
 Orcades, incaluit Pictorum sanguine Thule
 Scotorum cumulos flevit glacialis Ierne."—(Saxones, Com-
 mentatio, etc., Moller, 10; Latham's "English Language," 45; Mon. Hist.
 Brit., xviii.)

Again, in his address to Eutropius, in 399:—

"Tum sic orsa loqui (Roma) Quantum te principe possim
 Non longinqua docent; domito quod Saxone Tethys
 Mitior, et fracto secura Britannia Picto."—(Mon. Hist. Brit.,
loc. cit.)

Again, in his poem on the first consulate of Stilicho, in
 A.D. 400:—

"Illius effectum curis, ne tela timerem
 Scotica, ne Pictum tremorem, ne litore toto
 Prospicerem dubiis venturum Saxona ventis."—(*Id.*)

Lastly, in his Epithalamium on Palladius and Celerina, he
 says:—

". . . Constringit in unum.
 Sparsas imperii vires, cuneosque recenset
 Dispositos: quæ Sarmaticis custodia ripis
 Quæ sævis objecta Getis, quæ Saxona frenat
 Vel Scotum legio," etc.—(*Id.*)

These rhetorical passages are rather of value as showing how
 wide-spread the terror of the Saxon arms was, and in whose
 company they generally were, than for aught else.

We now come to the time when the famous survey of the
 empire was made, which is known as the "Notitia Dignitatum
 Imperii," which, as I have said, was written about the beginning
 of the fifth century. We find in that document, that a part of the
 Littus Maritimum had acquired the name Littus Saxonicum;
 thus we read, "sub dispositione viri spectabilis ducis tractus
 Armorici et Nervicani tribunus cohortis primæ novæ
 Armoricæ, Grannona in litore Saxonico." Grannona has been
 accepted by the antiquaries of Normandy as without doubt
 identical with Granville in the Cotentin. (Schaumann, *op.*
cit., 6.)

Eastward it extended at least as far as Marcq, in the
 neighbourhood of Calais; "Marcis, in litore Saxonico," as it is
 called. This name, which means march or frontier, doubtless
 points to their eastern limit. We may take it therefore with
 Schaumann, that the Littus Saxonicum in Gaul comprised the
 whole of Normandy, a part of Artois, and also the northern part
 of the Roman province of Lugdunensis Secunda. (*Op. cit.*, 6;
 Dircks, 16, note 5.)

On the opposite site of the Channel was a second Littus

Saxonicum, which is described as "sub dispositione viri spectabilis comitis Littoris Saxonici per Britanniam." The names of the stations within the jurisdiction are given as Branodunum (*i.e.*, Brancaster in Norfolk), Gariannonum (Yarmouth), Regulbio (Reculvers), Rutupiae (Richborough), Dubris (Dover), Anderida (Pevensey), Portus Adurni; so called from the River Adur, and now represented by Bramber Castle (Lewin, in "*Archæologia*," 439); Othonæ, the Ithancester of the Saxons, situated at Saint Peter's Head, in the parish of Bradwell in Essex (Lewin, *op. cit.* 439); and Lemanis (Lymne). (*Mon. Hist. Britt.*, xxv.)

As Dr. Latham says, it is safe to say that the whole line of coast from the Wash to the Southampton water, was in the reign of Honorius, if not earlier, a Littus Saxonicum. Although there was a Littus Saxonicum on either side of the channel, it was only on the British side that we find an official count of the Saxon shore, and this leads Schaumann to the conclusion otherwise probable, that at this time the maritime tract of northern Gaul was a dependence of Britain. (*Op. cit.*, 7.) It would seem that Rutupiae or Richborough had taken the place of Boulogne as the station of the fleet. We thus find the borders of the English Channel on either side named Littus Saxonicum. Whence did it derive this name? Some writers would have it that it was derived from the fact that this tract of land was subject to the attacks of the Saxon pirates, and was thence designated Littus Saxonicum; but as Lappenberg says, this appears as contrary to the principles of sound philology, as it is unhistorical. (*Op. cit.*, I, 46.) As Palgrave says, it would be an anomalous thing to find a country called after its invaders, and not after its inhabitants; and the view would probably never have been urged unless with the intention of bolstering up the traditions and fables about the early colonisation of Britain contained in the Anglo-Saxon Chronicle. The only reasonable conclusion is, that the Littus Saxonicum took its name from the people who settled there, who, as Dircks says, came from the neck of the Danish peninsula, and passing by the land of their relatives, the Frisians, who were a brave race, and much attached to their country, planted themselves as colonists in the lands of the empire, which was growing weaker and decaying. This view is the only reasonable one. That many of the Saxons were not mere pirates at this time, but were in close relation with the empire, we may gather from the same "*Notitia*," where in describing the garrisons of the eastern part of the empire, we read of an Ala Saxonica being stationed in Phœnicia. (Schaumann, *op. cit.*, 20.) They thus furnished recruits to the Roman armies, like their relatives the

Batavians, etc., and were therefore at this time in all probability settled on the Roman frontier.

This fact is again supported by Jornandes, who tells us that in the campaign which Ætius fought against the Huns in 431, he was assisted *inter alia* by detachments from the Saxon colonies of Armorica.

We may be certain therefore, that at the commencement of the fifth century, the coasts of the channel on either side were either partially or completely settled with colonies of Saxons.

Dr. Guest, in a famous paper published in the Salisbury volume of the "Transactions of the Archæological Institute," and which is not less remarkable for its learning than for its extraordinary reasoning, has attempted to answer the arguments of Kemble and others on this head. He argues in the first place, that there is no evidence of the opposite coast of Gaul having been occupied by Saxon colonists before the invasion of Hengist in Kent; but the "Notitia" proves the contrary, if our arguments are sound, since it was written fifty years before the arrival of Hengist as given in the Anglo-Saxon Chronicle. Doubtless, feeling this, Dr. Guest proceeds to argue against the usual and natural interpretation of the phrase "Littus Saxonicum." He argues as if littus and limes connoted the same thing. Limes unquestionably meant a march or frontier, and was applied in the phrase "Limes Saxonicus" to the frontier line between the Danes and the Saxons in Holstein; but littus means shore, and as I have already mentioned there was actually a mark proper, bounding the Saxon shore on the east, and still represented by the village of Mark: "Marcis in Littore Saxonico," is the phrase in the "Notitia," and Mark, be it noted, is not a Celtic or Latin gloss, but a Teutonic one.

Dr. Guest strengthens his contention by a statement that in one instance, and that, according to him, the most important, the Count of the Saxon shore in Britain is styled not Comes Littoris Saxonici, but comes limitis Saxonici. His words are, "when the officer commanding in this district is formally mentioned, and his authority defined, he is styled comes limitis Saxonici per Britanniam." In two other places where he is merely mentioned as one of the subordinates of some imperial officer of higher grade, he is distinguished as Comes Littoris Saxonici per Britannias. The use of the plural number seems to show, that in this phrase the compiler was using vague and general language. The more definite title was no doubt the official one." (*Op. cit.*, 33.) I am afraid that even this ingenious argument must be surrendered, for I find from the later and more critical edition of the "Notitia" by Böking, that the reading of limes for littus in one place is not sustainable. (*Schaumann, op. cit.*, 8.)

The arguments of Palgrave, Kemble, Schaumann, and Dircks on this head seem to me unanswerable. I will quote what Kemble says as singularly apposite. "The term *Littus Saxonicum*," he says, "has been explained to mean rather the coast visited by or exposed to the ravages of the Saxons, than the coast occupied by them: but against this loose system of philological and historical interpretation I beg emphatically to protest; it seems to have arisen merely from the uncritical spirit in which the Saxon and Welsh traditions have been adopted as ascertained facts, and from the impossibility of reconciling the account of Bede with the natural sense of the entry in the "*Notitia*;" but there seems no reason whatever for adopting an exceptional rendering in the case; and as the *Littus Saxonicum* on the mainland was that district in which members of the Saxon confederacy were settled, the *Littus Saxonicum per Britannias* unquestionably obtained its name from a similar circumstance." ("*Saxons in England*," edition Birch, I, 14.)

We may add to the arguments here and previously employed, another drawn from the names of the towns mentioned as the stations within the *Littus Saxonicum*. Several of these, as Dr. Haigh has pointed out, bear names of distinctly Teutonic type, and were doubtless derived from their Saxon holders. Thus *Regulbium*, the modern *Reculvers*, seems undoubtedly compounded with the Teutonic name *Raculf*, *Anderida* with the Teutonic name *Anderid*. "The name of Dover, latinised into *Dubris*," says Mr. Isaac Taylor, "reminds us of *Dourves* on the Saxon shore, near *Bayeux*; and of *Dovercourt* in the intensely Teutonised district near *Harwich*, as well as of *Dovrefield* in Norway. Mr. Lewin, however, derives it from the river *Dur*, which flows close by. (*Archæologia*, 41, 436.) *Thanet*, also a Teutonic name, appears in the pages of *Solinus*, an author not later than the fourth century." ("*Words and Places*," 145.) These facts seem to show overwhelmingly that the English shores were settled by a large Saxon colony long before the time of Hengist.

Having discussed the notice in the "*Notitia*," we have now to resort once more to the panegyrists, and shall quote from *Sidonius Apollinaris*, who wrote about 455. He tells us in one of his epistles, that an envoy from *Saintongne* reported upon the new ships and tactics adopted against the Saxons, whom he designates archpirates, and further tells us they were not only acquainted with the sea, but were at home there. (*Moller, op. cit.*, 10, note, 32.)

To these epistles of *Sidonius* are added certain verses; among them we find the following:—

"Istic Saxona cœrulum videmus
Assuetum ante salo solum timere
Cujus vecticis extimas per oras."

Addition to Epistle ix :—

"Non contenta suos tenere morsus
Altat laninem marginem comarum
Et sic crinibus ad cutem recisis
Decrescit caput aditurque vultus."

Again, at the end of Epistle viii :—

"Quin et Aremoricus piratam Saxona tractus
Sperabat, cui pelle salum sulcare Brittanum
Ludus et assueto glaucum mare findere lembo."—

(Moller, *op. cit.*, note.)

Again :—

" Victricia Cæsar (i.e., Julius)
Signa Caledonios transvexit adusque Britannos
Fuderit et quanquam Scotum et cum Saxone Pictum."—

(Mon. Hist. Brit., C.)

We must now have recourse to another set of authorities, namely, the orthodox accounts of the landing of the Saxons in Britain.

When we compare the various notices we have mentioned, with the traditional accounts preserved in the Anglo-Saxon Chronicle, we shall indeed wonder at the credulity of some modern historians.

Let us commence with the South Saxons. We have three notices of them in the Chronicle before the arrival of Augustine. In the first we are told how, in 477, Ælli, with his three sons, Cymen, Wlencing, and Cissa, landed in Sussex; we are then told they defeated the Welsh in 485, and lastly, that in 491 they destroyed the people of Anderida.

Now in regard to the first notice, we are told the invaders came in three ships. Hengist and Horsa are likewise said to have invaded Kent with three keels. The West Saxons also arrived in three ships. The three Gothic tribes of the Ostrogoths, Visigoths, and Gepidæ also went in three ships to the mouth of the Vistula. The Longobards migrated in three divisions. "The readiest belief in fortuitous resemblances and coincidences," says Kemble, "gives way before a number of instances whose agreement defies all the calculation of chances." (*Op. cit.*, i, 16.)

Ælli, the invader, bears a name quite foreign to the Saxons, while it is a well-known name among the Angles, two of their kings having borne it. I have small doubt that his name has migrated from some northern source. "It is remarkable," as Lapenberg says, "that Ælli of Sussex is the only one of the founders of Saxon kingdoms whose genealogy is not given, which is in

itself a very marked fact. Again, we are told by Bede, he was the first Bretwalda. It is strange that a second one is not named for a century; and if, as Lappenberg urges, we accept the statements of Bede and the Chronicle as to the facts of the invasion, and if we take into consideration the narrow compass of the Germanic possession in Britain at that time, we may safely ascribe the Bretwaldaship of Ælli to the liberal pen of the poet who has left us so circumstantial an account of these early conflicts." (*Op. cit.*, i, 106.)

I believe that he has been manufactured out of some misunderstood reference to the northern Ælli, the son of Ida, who was a Bretwalda.

Ælli's three sons, we are told, were called Cymen and Wlencing and Cissa. As Mr. Earle and others have pointed out, these names appear to be only fanciful, the offspring of rude etymological speculations, answering as they do to the names of three Sussex townships ("Parallel Chronicles," Introduction, ix); Cissa at Chichester (Cissan Ceaster) and Cisbury; Wlencing at Lancing; and Cymen, according to Mr. Daniel Haigh, at Keynor (Cymenresore), in Selsey. ("Conquest of Britain," 270.) The charter in which Cymenesora is mentioned, is however marked as spurious by Kemble.

It is curious that the capital of the South Saxons should in the legend have been called after Cissa, and not after his father Ælli, who was living, according to the Chronicle, in 491.

It may be that Ælli has also been created out of Elstead in Sussex. (Haigh, *op. cit.*, 270.) The names of Ælli's three sons are not mentioned by Bede, nor by the Welsh annalists, and were, there can be no doubt, manufactured like so many other eponymous names were elsewhere, from geographical sites.

It is well nigh certain from another argument, that the names of two of the sites referred to were given them in Roman times. This follows from the second elements of the names being Latin, *e.g.*, ora in Cymenes-ora, and ceaster in Cissan-ceaster. It was not the habit of the Saxons after their landing to found new settlements on Roman sites, and to give them mongrel names compounded of those of their chiefs and of Latin particles. Where we find the latter, we find old cities which date from before the Teutonic conquest, although some of them no doubt date from the times of Teutonic settlement in Roman days. Again, Anderida, which the invaders are said to have besieged in 491, and killed all the Britons there, was, as we have shown, one of the towns of the Littus Saxonium, and colonised no doubt by them long before.

The whole account of the foundation of the South Saxon State is in fact a fable, to be classed with the fables about the

descent of the Britons from Brutus, and of the Danes from Dan ; and I have no doubt that the plantation of that district, and perhaps also of the country north of the Weald, dates from the colonisation of "the Saxon shore" in the days of the later Roman empire.

Let us now consider the Saxons further north. Here they in later times apparently formed two sections, the Middle and East Saxons, in Middlesex and Essex.

"No territory," says Lappenberg, "ever passed so obscurely into the hands of an enemy, as the north bank of the Thames, where the kingdom of the East Saxons comprised the counties of Essex and Middlesex, of which the latter continued, probably for some time, in a state of independence." (*Op. cit.*, i. 112.)

I can find no evidence anywhere of Middlesex ever having formed a separate kingdom, and the conjecture that it did so, which is very general, has no doubt arisen on *à priori* grounds only. I believe, on the contrary, that the Middle Saxons were formerly in contact with the South Saxons, and probably occupied Kent, whence they were forced inland by the invasion of the Jutes, who when they landed, landed on the Littus Saxonicum. It was when the Jutes interposed a barrier between Sussex and Essex, that the names South, Middle and East were doubtless applied to the various sections of the Eastern Saxons. It seems incredible that if we accept the date of the Chronicle, namely, 477, for the foundation of the kingdom of the South Saxons, that the former should have been called South Saxons at all. They were the first Saxons to come. They would have styled themselves Saxons simply, and given qualifying names to the others. But such was not the case ; and we can only explain it by supposing that all were fragments of a homogeneous race which was scattered and broken. Again, if there had been any early annals and traditions about the royal races of South Britain, we may be certain that Middlesex, with its chief city of London, the capital of the country, and its most famous centre, would not have been left blank.

Again, in reference to the East Saxons. It is to be remarked that no account of the foundation of their kingdom is given either by Bede or in the Chronicle, a proof that no traditions survived. It is only when we come down to the twelfth century that we find Florence of Worcester, Henry of Huntingdon, and William of Malmesbury, constructing genealogies for their kings, which are clearly fabulous. Henry of Huntingdon dates the commencement of their kingdom in 527. (*Mon. Hist. Brit.*, 712.) William of Malmesbury dates it in 587. The former calls their first king Ercanwine, while the genealogical table attached to

Florence of Worcester, makes their first king be named *Æscwine*. The Ercanwine of Huntingdon is no doubt a corruption, as both he and Florence agree in making him the son of Offa. Both agree in making *Æscwine*'s son *Sledda*, and *Sledda* is made the first king of the East Saxons by William of Malmesbury. *Æscwine* is said to have reigned the fabulous time of sixty years. His name is merely a corrupt patronymic, connected with *Æsc*, the stem father of the Jutish race in Kent; and this explains our difficulty. The first really historical person in the history of the East Saxons was Sebert, the nephew of Ethelbert, the king of Kent, in whose time Christianity was first planted in Essex. And I have no doubt that the later race of Essex kings was derived from the Jutish kings of Kent. The Chronicle in fact tells us Sebert was appointed king by *Æthelbert*. Previously to the Jutish invasion, Essex formed a portion of the *Littus Saxonicum*, as Lappenberg has in fact suggested. (*Op. cit.*, 112.) Then it had no separate kings or chiefs, but was subject like the rest of the Saxon shore to the Roman rulers of Britain. And when it had separate kings, they seem to have been merely administrative officers appointed by the rulers of Kent. As Palgrave says, though Sebert was king of Essex, yet Ethelbert joined in all important acts of government. This was the fate of Essex; it was called a kingdom, but it never enjoyed any political independence, being always subject to the adjoining kings. (Palgrave, "History of the Anglo-Saxons, 40.") In regard to both the South Saxons and East Saxons, in confirmation of my contention that they were never independent kingdoms, but merely appanages or dependent viceroalties, is the very extraordinary fact that neither of them had a coinage; all the really independent sovereignties of Britain at this time, such as Wessex, Kent, Mercia, East Anglia, Deira and Bernicia, had a coinage.

As the error is a very perverse and general one, I am tempted to strengthen my position still further by a quotation from Palgrave, that most able scholar, to whose researches we owe more than one can well calculate. He says, "Concerning the conquest of the eastern shores of Britain, the British bards are as dumb as the Anglo-Saxon chroniclers. No conquests in the ancient territories of the Iceni are claimed by the victors; no defeats lamented by the vanquished. Both parties, both nations are equally silent. If, as is very probable, this part of the *Littus Saxonicum* had begun to receive a permanent Saxon colonisation during the existence of the Roman empire, we may suppose that these settlements spread the way for additional colonies, who occupied the country without further struggle or conflict, for it is very remarkable that the Britons have not even preserved a tradition respecting this country."

("History of the English Commonwealth," i, 384-5.) "Again," as Mr. Isaac Taylor says, "in Essex and Suffolk there is a smaller proportion of Celtic names than in any other district of the island, and this would indicate that the Germanisation of those counties is of very ancient date." ("Words and Places," 144.) I hold therefore that in regard to the South Saxons, the Middle Saxons, and the East Saxons, they made no conquests from the Welsh, but were descendants from colonies planted along the channel in the days of the Romans. This opens up a new vista of inquiry, which I hope to prosecute further when we deal with the Jutes in a future paper. Having examined the *Littus Saxonicum* in Britain, let us turn to its complement across the Channel.

Schaumann argues, as I think, very forcibly, that the settlement of the Saxons on both shores of the Channel was the work of Carausius, who we learn from Eutropius (IX, chapter xxi) was on terms of friendship with the Saxon and French pirates. Their settlement on either coast was accompanied by the foundation of new towns, and alterations in the topographical nomenclature. Of a famous old station in the land of the Viducassi, nothing more is now heard. Its site has been fixed by the Roman antiquaries at Vieux. Alauna, the chief town of the Unelli, probably now represented by Valognes, also disappears, while Gessoriacum, the chief port on the coast, is renamed Bononia.

That the new people on either shore of the Channel were planted as colonists, and did not occupy the land as hostile invaders, appears from a curious fact to which sufficient attention has not been drawn. In the districts of Bayeux and Coutances, were planted, according to the "Notitia" "*Læti gentiles*," and also Franks and Suevi, the latter a generic name, probably including Saxons. In the district of Senonia Lugdunensis, there was a *Præfectus Lætorum Teutonicianorum*, which Schaumann explains as the superintendent of the German colonists. This being one of the earliest instances of the use of the word Teutonic in a generic sense. (Schaumann, *op. cit.*, 15.) I would like to add to these facts, one overlooked by M. Schaumann, namely, the existence of the well-known Lathes in Kent, no doubt derived from these *Læti*. These Lathes existed elsewhere in England, and were perhaps general in those districts forming the *Littus Saxonicum*. They were, at all events, found in old times in Warwickshire. (See Dugdale's "Warwickshire.")

The Saxons then, as I contend, were planted as colonists. Like other similar colonists, they retained no doubt their own institutions, religion, and organisation, and furnished the empire with a contingent of irregulars, were in fact rather feudatories,

than subjects; while the Comes Littoris Saxonici filled a position probably similar to that of the late Austrian Governor of the military districts of Slavonia.

When the Roman authority became weak and impotent, the various military colonists apparently broke away from their allegiance, slowly but definitely, and having no one to control them efficiently, became dangerous neighbours. It is thus we explain the passages in Ammianus Marcellinus about the Saxon inroads in the reigns of Valentinian the First and Second. (Schaumann, 18.) These attacks are contemporary with another very eloquent one. Among the Roman stations in Normandy, Bayeux was probably the most important, and there there are still found an immense number of remains; but their date does not come later than the time of Valens and Gratian, when they suddenly cease, as if the Romans were then ousted by their unruly colonists. Still, as I have mentioned, we find a cohort of Saxons among the Roman troops in the east, mentioned in the "Notitia," while Jornandes reports that a contingent of the race assisted Ætius in his wars, but that they had ceased to be subjects, and were now allies. From the narrative of Zosimus, we learn that not only Britain, but also Armorica (which term, probably, was used in its wide sense), was free from Roman control. The Romans returned for a short interval in 416, under the prefecture of Exuperantius and Littorius (Schaumann, 21). But a more vigorous foe was at hand. We read how in 428 Chlodio, the chief of the Franks, who was settled with his people at Duysburgh, advanced by Cambray as far as Arras, and in near neighbourhood therefore to the Littus Saxonicum.

The auxiliaries furnished by Armorica to Ætius in 457, among whom the Saxons are specially named, as I have mentioned, are referred to in a very important phrase by Jornandes. He says of them, "*quondam milites Romani, tunc vero jam in numerum auxiliariorum acquisiti,*" i.e., the former subjects had now become allies.

The Roman hold upon Gaul was now reaching its term, and the Franks finally overwhelmed it. *Inter alia*, they no doubt came into conflict with the Saxons of the maritime tract, a race too proud to bend easily to the yoke of the Franks, and we accordingly find that a section of the Saxons was busy elsewhere.

Ægidius, the Roman ruler of Gaul, was dead, and the Franks were governed by the licentious Childeric, father of Clovis. It was now, and about the year 464, that we are told by Gregory of Tours, that Odoaker (Adovacrius in his orthography) with his Saxons went to Angers, which with other towns gave him hostages. At Angers he was apparently soon joined by the

Frank chief Childeric, who put the Count Paul (doubtless the Roman Governor) to death. A struggle now ensued between the Franks and the Saxons, in which the latter were defeated, and fled, leaving many dead behind them. *Their islands*, we are told, were taken and ravaged by the Franks, who killed many of their inhabitants. Childeric, we are told, made a treaty with Odoaker, and they together subjected the Alemanni who had invaded Italy. (*Op. cit.*, II, xviii, and xix.) The islands, here mentioned were, according to some, the islands in the estuary of the Loire. (See Spenser "Notitia Germaniæ Antiquæ," 362, note; Moller, *op. cit.*, 29.) But Schaumann identifies them more probably with the Channel Islands. (*Op. cit.*, 24.)

The "Chron. Moissiacense," in reporting the same event, says Odoaker went by sea with a naval host to Angers. (Moller, *op. cit.*, 29; note, 79.)

I have small doubt that it was the pressure of the Franks that set Odoaker in motion. He went, as I have shown from the Chronicle of Moissiac, with a naval host. The Saxons were still sea folk, and I have no doubt whatever that the same pressure which sent him away, drove many of the Saxons beyond the Channel to settle on the opposite coasts of Britain. I shall refer to these fugitives again presently.

It would seem that a large body of the colonists from the Littus Saxonicum must have gone, for we now find them reduced to much narrower limits. A proof of their former extension inland is to be collected from the fact that in the "Gesta Regum Francorum," the pagus Suessionensis is on one occasion called Saxonegus, and Fredegar, in his chronicle, calls the town of Soissons Saxonis. (Schaumann, 28).

The chief settlement of the Saxons which remained was in the district of Bayeux. On turning to Gregory of Tours we find him in the year 578 describing the campaign of the Frank King Chilperic against the Bretons. He tells us the men of Tours, of Poitiers, of Bayeux, of le Mans, and of Angers, marched with many others into Brittany to attack Waroch, the son of Malo, and halted on the River Vilaine. We are told that Waroch there fell unexpectedly upon the Saxones Baiocassenses, i.e., the Saxons of Bayeux, and killed the greater part of them. He afterwards made peace with Chilperic, gave his son as a hostage and also surrendered the town of Vannes. (*Op. cit.*) Here we find the Saxons of Bayeux mentioned as an integral part of the people of the Frank kingdom and fighting, under the royal banner.

A few years later, namely, about the year 590, during the reign of Childebert, we are told how the Bretons committed great ravages in the neighbourhood of Nantes and Rennes, and

thereupon Guntran, the king of Burgundy, the uncle and patron of Childebert, ordered an army to march against them, headed by Beppolem and Ebrachain, who quarrelled on the way. Beppolem was a *persona ingrata* to Fredegunda, the famous Messalina of these times; and we are told she sent the Saxons of Bayeux, who wore their hair cut short like the Bretons and also dressed like them, to the assistance of Waroch. Beppolem marched against these confederates alone, and fought against them for two days, killing many Bretons and Saxons. Meanwhile, Ebrachain remained behind, and determined not to join in the fray until he heard that Beppolem was killed. This happened on the third day after many of his men had perished and he had himself been wounded, when we are told Waroch and his Saxons fell on him and killed him. On the approach of Ebrachain, Waroch tried to escape with his treasures by sea "to his islands," *i.e.*, probably to the Channel Islands; but his ships were wrecked, and he had to sue for peace. (Gregory of Tours x, 9.)

Several names which occur at this time seem to me to have belonged to Saxons of this maritime colony. Thus Leudovald, bishop of Bayeux, and Marculf, the missionary to the Channel Islands, &c., while it is not improbable that Waroch, who has a very Teutonic looking name, was also a Saxon.

The adventure last described was the last in which the Saxons of Gaul took a conspicuous part. They now became (such of them as remained behind at least), subjects of the French Empire. The notices we have collected, and the positions they occupied, prove that they must have been a very important element in the population of Northern Gaul, and their influence upon Breton history has not been sufficiently appreciated. This is a subject, however, beyond our present purpose.

In order to complete my survey of the Continental Saxons, I will now add one or two further notices of them which I have met with.

The Saxons, as I have shown in a previous paper, although not Kheruskans proper, occupied the land of the Kheruskans, and became in consequence Kheruskans, as the English became Americans. We thus explain how it is that in the life of the missionary Saint Eligius, who spread the faith among the Saxons of Gaul, we are told that in order to make himself understood among them, he sought out an interpreter who knew the Kheruskan speech. (Schaumann, 16.)

The Saxons, as I have said, were thickly settled in Brittany itself. This we learn from Venantius Fortunatus, in his poem addressed to Felix Bishop of Nantes, speaks of his civilising and converting the Saxons. (Spener, *op. cit.*, 365, note.)

Let us now come down a little later. We find in a capitulary issued by Charles the Bald in 844, that he ordered several *missi dominici* to visit Neustria or Normandy; and among the districts he orders them to visit, were two named the Otlingua Saxonica, and the Otlingua Harduini. (Dupont. "Le Cotentin et ses Iles," 83.) In another document of the same reign, we find the king granting certain estates in the same district of Otlingua Saxonica. (Licquet's "Normandy" i, 33.) This district was probably situated in the district of Calvados, and was no doubt named from its Saxon settlers. I shall revert to it again presently.

In the memoirs of the Society of Antiquaries of Normandy, we read that a coin of Charles the Bald was found in the year 1818, at Caen, with this inscription on the obverse, Karolus D.G. Rex; on the reverse J. Curti, Saxonien.

In the same district are still two parishes known as Haute and Basse Allemagne, the latter was formerly known as Notre Dame des Champs d'Allemagne. (Schaumann, 27.)

In the May number of the "Ausland" for 1845, an account of various customs prevailing in northern France along the shores of the channel is given, which, as Schaumann says, are surprisingly like those found in the valley. He specially names among these the gathering or knots of spinning girls, the employment of summoners to wedding feasts with their staves (?), the ceremonial at banquets and on festive occasions. These customs do not prevail all over Normandy and Brittany, but only in secluded hamlets, and these are found within the limits of the ancient Littus Saxonicum. (Schaumann, 27-8). But perhaps the most striking testimony to the former presence of a large Saxon population along this coast, is to be gathered from its local nomenclature.

The advance of the Franks caused, as I have said, a considerable migration from Gaul.

The migration took place probably from certain districts only, while we have every reason to believe that in the neighbourhood of Boulogne and also of Caen considerable colonies remained behind. In regard to the former locality, Mr. Isaac Taylor has examined the question with great care and ingenuity, and has given a very eloquent map. He says in the old French provinces of Picardy and Artois there is a small well-defined district, about the size of Middlesex, lying near Calais, Boulogne, and Saint Omer, in which the name of almost every village and hamlet is of the pure Anglo-Saxon type; and not only so, but they are most of them identically the same with village names to be found in England.

Thus we have he says:—

FRENCH DISTRICT.	CORRESPONDING ENGLISH NAMES.
Warhem	Warham, Norfolk.
Rattekot	Radcot, Oxon.
Le Wast	Wast, Gloucestershire, Northumberland.
Frethun	Fretton, Norfolk.
Cohen, Cahem and Cuhen	Cougham, Norfolk.
Hollebeque	Holbeck, Notta, Yorkshire, Lincoln.
Ham, Hame, Hames ..	Ham, Kent, Surrey, Essex, Somerset.
Werwick	Warwick, Warwickshire and Cumberland.
Appegarbe	Applegarth, Dumfries.
Sangatte	Sandgate, Kent.
Guindal	Windle, Lancashire.
Inghem	Ingham, Lincoln, Norfolk, Middlesex.
Oye	Eye, Suffolk, Hereford, Northampton, Oxon.
Wimille	Windmill, Kent.
Grisendale	Grisdale, Cumberland, Lancashire.

"We have also," he says, "such familiar English forms as Graywick, the river Slack, Bruquedal, Marbecq, Longfosse, Dalle, Vendal, Salperwick, Fordebecques, Staple, Crehem, Pihem, Dohem, Roqueton, Hazelbrouck, and Robeck. Twenty-two of the names have the characteristic *ton*, which is scarcely to be found elsewhere upon the Continent, and upwards of one hundred end in ham, hem, or hen. There are also more than one hundred patronymics ending in *wig*. A comparison of these patronymics with those found in England, proves beyond a doubt that the colonisation of this part of France must have been effected by men bearing the clan names which belonged to the Teutonic families which settled on the opposite coast. More than eighty per cent. of the French names are found in England, etc." ("Words and Places," first edition, 138-41.) It is very curious to find that the village of Marck, the Marcis in Littus Saxonicum as I have already mentioned, is on the eastern boundary of this colony of names adding another proof that the Littus Saxonicum was a district really colonised by the Saxons. The second colony of names, which represents no doubt the Saxones Baiocassenses of Carolingian times, can still, according to Mr. Taylor, be sharply defined by means of its local names. "It will be seen that in the departments of the Eure and of the Seine Inférieure, where the Danish names of a later period are so thickly clustered, hardly a single Saxon name is to be found, while in the department of the Calvados, and in the central position of La Manche, where the Danish names are comparatively scarce, their place is occupied by names of the Saxon type. The Northmen seem to have respected the tenure of their Teutonic kinsmen, and to have dispossessed only the Celtic tribes who dwelt to the east and north-west of the Saxon colony. In this neighbourhood we find Sassetot (Saxon's-field) Hermanville, Etreham, or Ouistreham (Westerham), Hambze,

Le Ham, Le Hamelet, Cottun (Cow's-yard), Elainhus, Hewland (Hayland), Plumetot (Bloomfield or flowerfield), Douvres, which reminds us of our own Dover, and Caen, which was anciently written Cathem and Catheim. There are also about thirty patronymics. It is curious to observe in how many cases we find the same families on the opposite coast of Hants, Dorset, Devon, and Cornwall. In the whole of Cornwall there are only two patronymic names, and both of these are also found among the thirty on the opposite coast.

FAMILIES OF THE	NEAR BAYEUX	IN ENGLAND AT
Berings	.. { Berengeville } .. { Beringuy }	Berrington, Durham, Gloucester, Salop, Worcester.
Bellings	.. Bellengreville ..	Bellinger, Hants.
Basings	.. Bazenville ..	Basing, Hants.
Bobbing	.. Baubigny ..	Bobbing, Kent.
Callings	.. Caligny ..	Callington, Cornwall.
Ceafings	.. Chavigny ..	Chalvington, Sussex; Chevington, Suffolk.
Cofings	.. Cavigny ..	Covington, Huntingdon.
Ceardings	.. Cartigny ..	{ Cardington, Beds, Salop; Cardington, Cornwall.
Graegings	.. Gravigny ..	Gravingham, Lincoln.
Hardings	.. Hardinvaast ..	Hardinghuish, Wilts.
Iffings	.. Juvigny ..	Jevington, Hants.
Maerings	.. Marigny ..	Marrington, Salop.
Potings	.. Potigny ..	Podington, Dorset.
Seafings	.. Savigny ..	Sevington, Kent.
Sulings	.. Soulangy ..	Sullington, Sussex.
Dhyrings	.. Thoungny ..	Torrington, Devon.

("Words and Places," 148-9.)

These two colonies, one in Artois and Picardy, the other in Calvados, were, I believe, the fragments which remained behind of the former Saxon population of Neustria, who once in all probability occupied the whole land from Marck near Calais to the frontier of Brittany. The gaps represent where the Saxon population migrated; and where they migrated to is the next and final subject of this paper.

We have still left for consideration an important section of the English Saxons, namely those of Wessex. Their settlement in Britain I believe to have been different to that of the rest of the Saxons there. They did not occupy a part of the "Saxon shore," and the traditions about their first settlement and spread are more definite, but as we shall see, they are, if not fabulous, quite untrustworthy. First in regard to their great leader Cerdic. I have not seen it before mentioned, but it is a very strange fact that this is apparently not a Teutonic name at all, but a British name, the well-known name Caradoc, or Ceredig, as it is otherwise written, and which gave its name to Cardigan; and further, there seems to have been a British chief living at this very time who fought against the invaders, and whose name

has apparently been borrowed by the later fabulists and annalists, but not perhaps directly. Just as we have a Cymenes ora in Sussex, where Cymen is said to have landed, so we are told that Cerdic landed at Cerdics ora, which has been identified with Charmouth. Here again ora is a Latin termination, making it almost certain that the name Cerdics ora is older than the Saxon invasion. These two facts make us entirely doubt the existence of Cerdic as a Saxon leader. I had written so far, and arrived at this conclusion entirely independently, when on turning over the pages of Palgrave, I came upon the sentence, "It does not diminish our perplexities to find that the Saxon name Cerdic is evidently the same as the British Ceretic or Caradoc, and that some of the British princes claimed their descent from this very Gewissa (*i.e.*, Cerdic's ancestor in the third degree), whom they describe as a female ("English Commonwealth," I, 398, note.)

It is not perhaps very extraordinary that I should have come independently to the same conclusion as Sir Francis Palgrave, in regard to the etymology of the name Cerdic, but it is surely very strange that so many recent writers should have treated Cerdic as a *bond fide* Englishman. The remark of Sir Francis Palgrave about Gewissa is a very fertile one. Not only was the name used by the Britons, and given to one of their princesses, but it is quite evidently not a Saxon name at all in form, but is in all probability of Celtic origin. The name is an interesting one, and for once I believe the pseudo Asser's statement to be a reasonable one. On naming this Gewissa, he adds a "*quo Britones totam illam gentem Gegwis nominant.*" (*Mon. Hist. Brit.*, 468.) And we find a confirmation of this in the "*Annales Cambriæ*," where we read under the year 900, "*Albirt, i.e., Alfred rex Giuoys moritur.*" (*Id.*, 836.) Lappenberg and Geoffrey of Monmouth in reporting the old Welsh traditions, mentions the Gewissians more than once. On the other hand, the name is quite unknown to the English writers, except Bede, who tells us the West Saxons were formerly called Gervissi. Here, as in other places, he proves whence he derived his materials, namely from the old Welsh writers, among whom alone the name was home-grown. But Gewissa and Cerdic are not the only British names in this genealogy. We are told in it that Cerdic was the son of Elesa, Elesa of Esla and Esla of Giwis. Elesa and Esla seem forms of the same name, and neither of them have a Teutonic look, and one of them at least is assuredly British. Helised is named by the pseudo Asser as one of the Welsh kings who was contemporary with Alfred, while Heli is the name of a British king in Geoffrey of Monmouth.

It is almost certain therefore, that a number of the names in the genealogy of Cerdic as given in the Chronicle, are of British origin. It is very strange, as I have said, that Cerdic does not occur in Bede, nor is he named, so far as I can find, in the Welsh accounts of the invaders as one of the chiefs of the latter. It is further a remarkable fact, that in the various notices of the founders of the West Saxon monarchy in the Chronicle, with one exception, the people of the island are called Brettas and not Walas, as in the narratives of the other invaders. All these facts make it almost certain to me, that the account of Cerdic is a distorted, if not utterly fabulous version of some Welsh tradition. But let us examine the story somewhat further. We are told Cerdic landed at Cerdics ora with his son Cynric, in 495, and the same day fought with the Welsh. Nothing more is said of the invaders till the year 501. We are then told that Port and his two sons Breda and Magla came to Britain with two ships, and landed at Portsmouth. Hitherto nothing is said in the Chronicle about the West Saxons; but under the year 514 we read, that "the West Saxons came to Britain with three ships at the place which is called Cerdics ora, and Stuf and Wihtgar fought against the Britons and put them to flight. Elsewhere, "sub. ann. 534." Stuf and Wihtgar are called Cerdic's nephews; and we are told that having conquered the Isle of Wight, Cerdic and Cynric gave the island to their two relatives. (Mon. Hist. Brit., 301.) These names and statements have been the subject of much criticism. Dr. Latham has made some pertinent remarks about them. "In regard to Port or Portus, he says it must have been simply the Latin name of Portsmouth, long anterior to A.D. 501. But the landing of a man named Port at a place called Portsmouth, is no impossibility; granted; it is only highly improbable; the improbability being heightened by the strangeness of the name itself, heightened also by the following fact. Just as a man named Port hits (out of all the landing places in England) upon a spot with a name like his own a man named Wihtgar does the same."

Now Wiht is the Anglo-Saxon form of the name Vectis, a name found in the Latin writers long anterior to 530, while gar is a form of ware or waras = inhabitants. Hence just as Kent = the County Kent, and Cantware = the inhabitants of that county, or Canticolæ; so does Wiht = Vectis, and Wihtgar = Vecticolæ. Yet the Anglo-Saxon Chronicle makes it a man's name. The names of Port and Wihtgar give us the strongest possible proof in favour of the suggested hypothesis, viz., the "*ex post facto* evolution of personal names out of local ones." ("English Language" fifth edition, 28.)

It seems quite clear that the whole story has been manufactured at a later period; the names where the battles were fought as Cerdicsford, Cerdics lea and Cerdics ora are variously forms of Charmouth, Charford, etc. The very dates are outrageous. Cerdic, like Hengist, is made to reign forty years in Britain, and after his death Cynric, who arrived with him, reigned twenty-six years more." (Kemble, *op. cit.*, 30, note).

Port the eponymos, formed from Portus, we are told, came with his two sons, Bieda and Magla. I have small doubt myself that Bieda and Magla are also merely eponymous names, and I shall have more to say about them when I come to treat of the Jutes.

We are told that in 508 Cerdic and Cynric fought with the British Prince Natanleod. If one wishes to see how far perverse ingenuity can go in building up a fabulous story, I would commend my hearers to read Dr. Guest's remarks on this name in his famous paper in the Salisbury volume of the "Transactions of the Archæological Institute." It is sufficient here to state that such a person as Natanleod is not only unknown to Bede and the Welsh Chroniclers, but, to add a note of Mr. Earles, which I cordially endorse, he says, "In 508, a local name Neatanleah (now Netley) which probably means *a pasture for oxen*, is ambitiously associated with one of the most famous of British dynastic names." (Earle's "Chronicles," introduction, ix.)

Natanleod, in fact, is another name made up and constructed in the same fashion as Port. In 514, we are told the West Saxons came to Britain with three ships, and landed at Cerdics ora. This seems like another version of the story told in 495 of the arrival of Cerdic and Cynric with five ships, at Cerdics ora. If it be not, then it is clear that Cerdic and Cynric were other than West Saxons. Again, as Mr Guest himself has said, it seems strange that nineteen years after the arrival of the two chiefs, the West Saxons should have found Britons to oppose them. And yet another curious fact turns up in 519, when we are told Cerdic and Cynric took possession of the West Saxon kingdom. Again Stuf and Wihtgar are made the nephews of Cerdic in the "Chronicle," which also makes them rule over Wight after it had been conquered by Cerdic, while Bede tells us Wight was conquered and held, not by Saxons, but by Jutes.

The fact is, the story from end to end is utterly ridiculous, and it is almost incredible how so many writers should have blindly followed it. I shall not prosecute this criticism further. It is enough to have shown that the Saxons, when the "Chronicle" was written, were in the same position as they were in the days of

Bede, and had no reliable traditions about their first arrival in the island. Dr. Guest enlarges on runes, and conjectures at large upon the calendars kept with runes, but he nowhere adduces any evidence that runes were known to the Saxons at all. I believe they were utterly unknown to them, and so was writing, until their conversion to Christianity. The Angles used runes undoubtedly, but the Angles were not Saxons, and I am confident I am speaking justly, when I say that neither in Westphalia, Engern, or Ostphalia, nor in the Littus Saxonicum of Gaul, nor yet in the districts occupied solely by the Saxons in England has a rune been found; and further, it seems pretty certain that if any written calendars had existed, they would have existed in Nether Saxony and in the Gallic Saxonia, no less than in Britain; nor would Bede, as he certainly did, have gone to the pages of Nennius and the Britons for his account of the invasion and of the early invaders. It is thence modern historians must derive an account of the history of the fifth and sixth century in these latitudes, and not from the fables of the "Chronicle," which are of the same value in regard to the foundation of the early Saxon States, as is Livy with his stories of Romulus and Remus. This, however, we cannot prosecute at present. Having however rid ourselves of certain fables and fabulous tales, we have a comparatively *tabula rasa* to begin our story with. Whence then did the West Saxons come from?

Bede, as we all know, tells us the Saxons came from Old Saxony. He tells us further the Old Saxons were otherwise called Ambrones.

By Old Saxony, Bede undoubtedly understood Nether Saxony. His use of the synonym Ambrones has been a puzzle to most inquirers, nor am I satisfied with any of the received explanations. The nucleus of Nether Saxony was, as I have said, Engern, or as I would rather call it, the Weserthal, the valley of the Weser. Now one of the feeders of the Weser in the very heart of Engern, and not far from Paderborn, is the Ambra or Embrine. It is not unreasonable to suppose that the Nether Saxons who settled in this district were known as Ambrones; but let us on with our story. Bede, as I have said, derives the Saxons from Old Saxony, by which he understands our Nether Saxony.

Now we have shown whence the Saxons of the Littus Saxonicum came, whence also the Nether Saxons came, and that they were both offshoots of the seafaring Holsteiners of the second century A.D., which was not the Old Saxony of Bede. And on turning to the oldest traditions extant among the Old Saxons themselves, namely, those reported in the account of the translation of Saint Alexander, we do not find a syllable about

the English Saxons being a colony from that district, but the reverse. The Old Saxony of Bede was shut out from the sea by the Frisians, except in the narrow district of Hadeln, between the Weser and the Elbe. Whence then did the West Saxons come from, whom we have reasons for believing arrived later than their western neighbours, and when the *Littus Saxonicum* had been colonized? I cannot find a more plausible or likely solution than that propounded by Schaumann, that they came from the other side of the English Channel. Opposite to Wessex lay the *Otlingua Saxonica*, and the *ot* in this phrase has been explained by Schaumann and Dircks as equivalent to *oret*, that is old. The former writer argues that the *Old Saxony* of the tradition was this *Gallie Saxonica*, this *Otlingua Saxonica* in Normandy; and that when the distracted Britons sought succour against the Picts and other invaders, they did not go to Nether Saxony, which was far beyond their reach, and doubtless also their knowledge, and inhabited by terribly barbarous races, but went across the channel to the Saxon tract there, whose inhabitants must have been well known. I quite concur in this conclusion, but not in the etymology of *Otlingua*, favoured by Schaumann. I much prefer the explanation of it given by Depping and Grimm, who derive it from *Atheling* or *Etheling*, the Saxon for a noble. Taylor compares the name with *Athelney*, formerly *Athelinga igge*. ("Words and Places," 147.) We must remember that the beginning of the sixth century was synchronous with the occupation of Central and Northern Gaul by the Franks. The latter, who were inveterate enemies of the Saxons, seem to have pushed them to a large extent from their homes along the channel, as I have already mentioned. One section of them, under *odoaker*, we find at Angers. We have a very interesting trace of another section in the life of Saint Marculf. Saint Marculf was born in 483 at Bayeux, and was doubtless himself a Saxon. In 511 he left Bayeux as a missionary, and was ordained a priest in 513 at Coutances. He then retired for a while to a secluded spot, where he founded a monastery. The site was afterwards well known under the name of Nanteuil. There his fame collected many religious about him, among others, Saint Helier, the proto-martyr of Jersey, an island then called *Angia* or *Augia*. Saint Helier, with his companion Domard, set sail after a while for Jersey; and some years afterwards Saint Marculf paid them a visit there. ("Le Contentin et ses Iles," by Dupont, 25-34.) It was while Saint Marculf was there that, according to the narrative of his life, 3,000 Saxons (no doubt a gross exaggeration in numbers) came in ships driven both by oars and sails to the island, and began to devastate it. The islanders who did not

number more than 30 were panic-stricken, and repaired in their distress to Saint Marculf. He bade them trust in God and go out against the enemy, for God who had overwhelmed Pharaoh would assist them. They accordingly attacked the invaders, who, we are told, perished partly by the sword and partly by the tempest, so that none of them reached their country again. The lord of the island hearing of what had happened, made a grant of half of it to the missionary. ("Acta Sanctorum ordinis S. Benedicti," 1, 132.) The Saxons, were however, by no means all destroyed, for Saint Marculf having returned once more to Nanteuil to get materials for a monastery he meant to build in Jersey, the Saxons attacked Saint Helier while hiding among the rocks, and decapitated him. (Dupont, *op. cit.*, 45.) We thus find the Saxons in the earlier half of the sixth century, making a descent upon the Channel Islands, where, judging from the topography, they must have settled in large numbers.

I have small doubt myself that under the same pressure of the Franks, to which I have already referred, a large body of the inhabitants of the Littus Saxonicum in Gaul migrated also across the channel and became founders of the West Saxon kingdom, and were the Gewissi of the Welsh authors. And this is in curious agreement with certain facts otherwise puzzling. Mr. Isaac Taylor has remarked of the country about Caen, "that it is divided by thick hedgerows into small irregular crofts, and the cottages are unmistakably English rather than French in structure."

And no one can travel even cursorily through Lower Normandy, with its apple orchards, its cider, and its red cattle, without being reminded of Devonshire and Somerset. If the argument be of value urged by Mr. Kemble, that the simple patronymics ending in *ing*, represent the parent settlements, and those with the additional syllables of *ham*, *ton*, &c., the offshoots, then it is a strange confirmation of our contention that in the counties of England, comprised in the old Littus Saxonicum, the proportion of the former should be so great, while in the Western counties, comprised in Wessex, there should hardly be any of them. (See Isaac Taylor, "Words and Places," 138.) This testimony is not of less value, in that it is quoted there in support of an entirely different position.

I have now completed my survey of the migration and settlement of the Saxons along the borders of the Channel. In the next paper I hope to deal with the Saxons east of the Rhine. The conclusions I have arrived at are at issue with those of the school of history now dominant, and are of far wider importance than as mere ethnological facts. If the Saxons in Britain settled there for the most part as colonists and not as conquerors,

we must revise very largely the notions of our early history now current. I hope to prosecute the fertile inquiry further when we come to treat of the Jutes.

NOVEMBER 13TH, 1877.

JOHN EVANS, ESQ., DCL., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The election of Rev. J. A. Bennet, of Cadbury, Somerset, and F. V. Dickens, of Yokohama, was announced.

The following list of presents was announced, and thanks were ordered to be returned to the respective donors.

FOR THE LIBRARY.

From the Author.—De la différence fonctionnelle des deux hémisphères cérébraux; Sur la tripanation du Crane. By Dr. Paul Broca.

From Professor F. V. Hayden.—Ethnology and Philology of the Hidatsa Indians. By W. Mathews. Bulletin of the United States' Geological and Geographical Survey of the Territories, Vol. III, Nos. 1–3. Miscellaneous Publications, Vol. III, No. 6. Bulletin of the United States Entomological Commission, Nos. 1 and 2.

From the EDITORS.—Ueber den queren Hinterhauptswulst am Schädel verschiedener aussereuropäischer Völker. By Prof. A. Ecker. Zur Kenntniss des Körperbaues früherer Einwohner der Halbinsel Florida. By Prof. A. Ecker.

From the Anthropological Society of Berlin.—Zeitschrift für Ethnologie. Nos. 2 and 3, 1877.

From the AUTHOR.—Scoperte Antropologiche in Ossero. By Captain R. F. Burton.

From the AUTHOR.—La Grotta colapresso petrella di Cappadocia nella provincia dell' Abruzzo Ellerioie. By Dr. G. Nicolucci.

From C. ROBERTS and G. L. STEEL, Esqs.—St. George's Hospital Report, Vol. VIII, 1874–6.

From the SOCIETY.—Journal of the Royal Geographical Society, Vol. XLVI, 1876. Proceedings, ditto, Vol. XXI, Nos. 4–6.

From the INSTITUTION.—The Canadian Journal, Vol. XXV, Nos. 6 and 7.

From the ASSOCIATION.—Transactions of the American Medical Association, Vol. XXVII, 1876. Supplement to ditto, 1876.

- From the CLUB.—Proceedings of the Berwickshire Naturalists' Club, 1876.
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- From the INSTITUTE.—Transactions and Proceedings of the New Zealand Institute. Vol. IX.
- From MRS. MORGAN.—Coptic Researches. By Dr. Carl Abel.
- From the SOCIETY.—Journal of the Royal Asiatic Society. Vol. IX, Part II.
- From the SOCIETY.—Proceedings of the American Philosophical Society. Vol. XVI, No. 99.
- From F. A. ALLEN, Esq.—The Tribes inhabiting the Neilgherry Hills, 1864.
- From JAMES MCCLELLAND, Esq.—Morton's "Crania Americana."
- From the ASSOCIATION.—Report of the British Association, 1876, Glasgow.
- From the ASSOCIATION.—Report and Transactions of the Devonshire Association. Vol. IX, 1877.
- From the AUTHOR.—Lecture on the Antiquity of Man. By Prof. T. Rupert Jones, F.R.S.
- From the SOCIETY.—Mittheilungen der Anthropologischen Gesellschaft in Wien. Vol. VII, Nos. 4-6
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From the AUTHOR.—Origin of the Chinese Race; Early Maritime Intercourse of Ancient Western Nations; Japanese Wrecks, &c., in the North Pacific Ocean. By. C. W. Brooks.

From the EDITOR.—Nature, to date.

From the EDITOR.—Revue Scientifique. Nos. 1-19, 1877.

FOR THE MUSEUM.

From PROF. BOGDANOW.—40 casts of skulls made of *papier-mâché*.

Special thanks were voted to Professor Bogdanow for his collection of 40 *papier-mâché* casts of skulls, and to Mr. McLennar for his copy of Morton's "*Crania Americana*."

Mr. Hyde Clarke made the following observations on Prof. Bogdanow's gift.

MR. HYDE CLARKE said this collection had been offered to the Institute by Prof. Bogdanow with equal delicacy and liberality, and on every ground deserved the special tribute the President had proposed. Prof. Bogdanow, who had achieved a well-merited reputation as a man of science, had particularly devoted himself to the formation in the University at Moscow of a Department of Anthropology, which under his auspices had made successful progress and acquired importance. Indeed, it had justified its founder in proposing for next year an Anthropological Exhibition at Moscow. It was in connection with the Anthropological Department, that the Professor had formed the collection of typical skulls of the neighbouring Asiatic tribes, and to render it more useful to the world of science, he had caused these carefully prepared models to be formed. Of the value of them the President had spoken, and it had been acknowledged by the most distinguished authorities in this country. Prof. Bogdanow considered it to be his duty to offer a series of models for the acceptance of the Institute; but in making this proposition, he had particularly desired him not to communicate it to the Institute until a decision had been obtained on the question of the co-operation of English Anthropologists at the Moscow Congress, lest Prof. Bogdanow should be refused as offering a bribe instead of a free gift. Mr. Clarke had consulted the President, who considered that with the pledges already given for the Exposition at Paris, our colleagues here could give no effective assistance. This was a matter of regret to Anthropologists, but some suitable opportunity may present itself of assisting our friends at Moscow; but at all times we should be ready to manifest our esteem for our fellow-worker, Professor Bogdanow.

Major General A. Lane Fox exhibited some flint flakes from Egypt, and the following note thereon by Captain R. Burton was read.

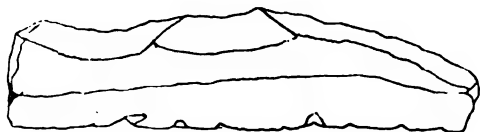
FLINT FLAKES FROM EGYPT.

The little collection of 50 flakes was made by Mr. W. P. Hayns, of the Numismatic Society (Messrs. Greenfield, Alexandria Harbour Contract), who kindly forwarded it to me for your Museum.

The site of the "find" is Helwán (les Bains), 15½ miles by rail south of Cairo, on the right bank of the Nile Valley, which irrigation would render immensely productive, and some 2½ miles from the river. The place is well known, having of late years become a kind of Sanitarium. Its only interest to archæologists is the presence of what appears to be a flint manufactory. The "finds" have caused much sensation. The thorough-going Egyptologist, who holds that "art had no infancy in Egypt," has a personal aversion to the stone age; and he readily accepts the theory of Drs. Schweinfurth and Günfeltdt, Herr G. Rohess, and Dr. Zittel ("Bull. de l'Inst. Egypt," No. XIII, pp. 56-64), namely, that sudden and eocenic changes of temperature have produced by expansion and contraction what is attributed to the *atelier*. On the opposite side, Sir John Lubbock and other naturalists, finding preneolithic silex-types at Thebes (Valley of the Kings); at Jebel-Kilebizzeh, near Esneh; at Girgeh, Abydos, etc., consider the stone age proven in the hill-valley. They are supported by Dr. Gaillarsdot, of Cairo, who declares that worked silexes have been picked up at Assouan (Syene), at Manga, and in the crevices of Jebel Silsileh; this savant sees no reason why man should not have been coëval with the powerful quaternary vegetation bordering on the great river. The highly distinguished M. Auguste Mariette is exceedingly reserved upon the subject, and he is evidently right to speak only of what he has seen when actually working the grounds. M. Arcelin has published, in the "Correspondent" of 1873, "La Question Préhistorique," and has replied to objectors in "l'Age de la Pierre et la Classification Préhistorique, d'après les sources Egyptiennes."

Mr. Hayns further writes to me that the exact site of the "find" is the stony tract surrounding the sulphur and soda-springs of Helwán, extending two or three miles along the right side of the Nile. A friend of his when walking over the

grounds some three years ago, picked up a fine specimen of a saw, measuring two and a-half inches; and arrow heads are spoken of. Worked flakes and roughly-shaped spear-points have also been collected on the opposite river-bank. At Záwiyat, Ariyán (naked men's corner?), about five miles above the pyramids of G'izeh, lies the platform of a similar feature, now ruined; and here, near the place where the saw came to hand, Mr. Hayns lately discovered a flake which appears to be a scraper.



For remarks upon the collection of flint implements at Bulák see the "Notice des Principaux Monuments," &c. Le Cairo, Morirès, fifth ed., pp. 81-2.

I have great doubts concerning the little collection which is herewith forwarded. To me only one flake, round which I have tied a thread, appears as if worked. The others look like mere *éclats*, which may be due to the causes which have overspread the Libyan desert with millions of specimens, numbers which, as Drs. Schweinfurth and Günfeltdt remark, completely forbid our attributing them to art. However, your practised eye may correct my hasty judgment, and I am anxious to learn the result of your examination.

TRIESTE, *June* 19, 1877.

RICHARD F. BURTON.

The following papers were then read by the Director in the absence of the Authors—

THE SPREAD of the SLAVES. Part I.

THE CROATS.

By H. H. HOWORTH, Esq., F.S.A.

By your favour I have recently commenced a series of papers on the ethnography of Germany; I find it difficult to proceed in this work without at the same time considering the migrations and changes which the Slavic races have been subject to. Germans and Slaves being close neighbours, with frontiers frequently shifting and overlapping, it is almost impossible to understand the revolutions which have overtaken the one race, nor to map out its details correctly, without at the same time

surveying its neighbours. I therefore propose to write a number of papers concurrently with the series on the Germanic races, in which I shall treat of the ethnography of the Slaves: and I find it convenient to begin with the Croats.

The synonymy of the Croats has been collected with great patience by Schafarik, and from his classic work I take the following list of synonyms. By the Emperor Constantine Porphyrogenitus, they were called Chrobatoi; by Cedrenos Khorbatoi; by Zonaras, Krabatoi; by Nicephorus Bryennios, Khorbatoi by Khoniates, Khrabatia; by Khalkokondylas Krokatiol. The Arab Masudi calls them Khorwatin. A gau in Karinthea is called Crawati in an early document. In deeds of 954 and 978 they are called Khrowat; by Dithmar Khr-uati; by the "Annalista Saxo," Krowate; in the Saxon Chronicle Kruwati; a village Crubate is mentioned in 1055; another Gravat in 1086; the land of Kurbatia by Lupus Protospathes; Chrowati by Cosmas of Prague; Cruacia by Martin Gallus Croatii by Kadlulek. Alfred the Great calls them Horithi; Croatia and Croatia occur in native documents of 892, 925, 1076, and 1078; Chrobatæ in a deed of 1059, etc. In the Cyrillian legend of Saint Wenzel, dating probably from the tenth century, the name is written Khrbate, Khorbate, Khrbate; Khorbate by Nestor in the copy written in 1377; Khrbate in the oldest Servian MSS.; Khrbaten in an old Bulgarian MS.; Harwati, in the Dalmatian Chronicle of Diokleas, Kharwati in Dalimil, etc.

The Croats pronounce their own names Hr'wati, Horwati, The Serbs and Illyrians call them Hr'wat, plural Hr'wati. In both cases, as in the words hrabren, hrast, hren, hvala, hud, etc., h stands for the old ch. The Hungarians call them Horvatok, the Germans, Kroats, and Krobats.

The original form of all these names is Khr'watin in the singular, and Khr'wati in the plural, and according to all authorities known to me, including Schafarik, is derived from the Carpathians, which in old Slavic were named Krib, or Khrebet. This word means a mountain or hill, and occurs in composition in many Slavic localities, as Slovenski hribi in Steiermark; also several places in Russia, as Khriby, a village on the Kolpinka, and the Khribian woods and marshes in the same district; Khrebine, a village west of Vladimir, etc. From Khrib we get Khrebet, the term applied generally to large mountain ranges by the Russians, as Yablonoi Khrebet, Uralskoi, Khrebet, Kamskatskoi Khrebet' etc. (*Id.*, i, 488.) Croat therefore means merely an inhabitant of the Carpathians. According to Schafarik, the whole of the northern slopes of these mountains, stretching from the Sutschawa to the sources

of the Vistula, was known from the fifth to the tenth century as Khrby, and sometimes, by the permutation of consonants, Khrwy, or Khrwaty (*id.*), and this is the region, according to the best authorities, whence the Croats originally came.

The author to whom we are indebted for the first notice of the migration of the Croats, is the Emperor Constantine Porphyrogenitus whose notice has been sifted with great critical acumen and skill by Schafarik, the author of the "Slavonic Antiquities." Constantine tells us how in the reign of the Emperor Heraclius, the Avars having driven the Romans out of Dalmatia, and that province having been converted into a desert, the Chrobati, by the Emperor's invitation, entered that country, drove the Avars out, and settled there. Schafarik dates the invasion of the Avars about the year 630, and their expulsion about 634. (*Op. cit.*, ii, 241.) "Previously the Chrobati lived," says the Emperor, "beyond Bagibaria, where still live the Belo Khrobati" (*i.e.*, the White Khrobati), which doubtless means the Free Khrobati, as distinguished from the Black or subject Khrobati. In another place he tells us that in his day these White Khrobati still lived in their own land, near the Franks, and subject to Otho the Great. In a third place, where he describes the old country of the Servians, he tells us it was situated beyond the land of the Turks (*i.e.*, the Magyars), and was called Boiki, and was near Francia and Great or White Khrobatia. (Stritter, ii, 157 and 390.) As Schafarik says, there is much ambiguity in these apparently distinct statements. Boiki has been often supposed to represent Bohemia; but the land whence the Servians came was called Boiki by themselves; while as is well known, Bohemia has always among the Slaves been called Cheky. Again, Constantine does not write the name Boiké, as he would have done if he wished to connect it with the Boii, but Boiki (indeclinable, as was the custom of the Greeks in writing barbarous names). Schafarik concludes, as I think most justly, that by Boiki there is no reference to Bohemia, but a reference to the Russian tribe of the Boyki (Russian. Boyki, singular Boyok), who still live in Eastern Galicia from the Dniester to the Pruth, in the district of Sambor and Stryi, in the lower part of Stanislawof, and Kolomyi, and also scattered in the district of Chorkof and very probably still further north. Constantine's putting Borki in the neighbourhood of the land of the Franks, was perhaps due to some confusion in his own mind between Boiki and Bohemia.

Constantine in another place describes White Croatia as situated beyond the Turks, which with him means the Hungarians.

Again, as to Bagibaria, some would make it equivalent with dwellers on the Wag or the Bug; others a corruption of Babi-egorbo, an old name for the Carpathians; (Stritter, ii, 389, note.) Others again connect it with Bavaria; Bavaria then stretched as far as the Danube, and Gallicia might well be described as being beyond Bavaria and the land of the Turks (*i.e.*, of the Magyars). (*Id.*, ii, 243.)

On turning to other authorities, we find this conclusion amply supported. Nestor, the first Russian chronicler, in speaking of the times before the arrival of the Varangians, names the Khorwati in close proximity with the Dulyebii, who lived on the Bug, and the Tiwertzi who lived on the Dniester. And he distinctly calls them Khrobate biele, or White Croats. In describing the campaign of Oleg against the Greeks, in 906, he mentions how he was assisted by contingents of men from the Varangians, the Slovenians, the people of Novgorod, the Chudes, the Kriwichi, the Mera, the Polani of Kief, the Derewani, the Radimiches, the Severani, the Wiatiches, the *Khorwati*, the Dulyibii, and the Tiwertzi. "These Khorwati," as Schafarik says, "no doubt were the White Khorwati, who lived beyond the Carpathians. In 981 Vladimir declared war against Mechislaf of Poland, apparently to reconquer certain places in Gallicia which had been won by Oleg, but had been re-occupied by the Poles. He took the towns of Cherwen (now called Czerno), on the river Guczwa, Peremysl, etc. Oppressed on all sides, the Croats tried to regain their independence." (Schafarik, ii, 105.)

In 993 we find Vladimir undertaking a fresh war against them, whose issue is not stated.

Besides these proofs, we have as remains of the former occupation of this district by Croats, the names of certain places, as the villages of Horb, Horbok, Horbof, Horbowiza, Horibatche, Zahorb, Hrbitschi, Hribowa, Hrichowze, and more doubtfully, Khrewt, in the circle of Sanock; Kharwin, and four villages called Kharsevitze in Eastern and Western Gallicia, etc. (Schafarik, *op. cit.*, ii, 106.)

Zeuss argues very forcibly that the name *patria Albis* given by the Geographer of Ravenna to the flat country north of the Carpathians, is not to be explained as the country of the Elbe, but as the white land, and as equivalent to the White Servia and White Croatia of the Byzantines. ("Die Deutschen und die Nachbarstämme," 610.) He also mentions that north of the mountains, although west of the ancient White Croatia, we meet in mediæval times with traces of the Croats; thus we find Cosmas of Prague, under date 1086, in mentioning the border districts of the diocese of Prague north-west of Bohemia, near the gau of Troppau, speaking as follows, "Ad aquilonu-

lem hii suut termini: Psouane, Ghrouat, et altera Chrouati, Zlasane, Trebouane, Boborane, etc." (*Id.*, 610.) These Croats are probably referred to in the legend of St. Wenceslaus, where we find that Drahomira fled to Croatia. This was in 936. (Schafarik, *op. cit.*, ii, 444.) They would also seem to be the Horithi of Alfred. (*Id.*) It is possible that these Croats were not a section of the White Croats, but received their name merely from living in the chribty or mountains. There can be small hesitation however in accepting the neighbourhood of Gallicia north of the Carpathians as the cradle land of the Croats.

Invited by the Emperor Heraclius, as I have mentioned, the Croats set out under the leadership of five brothers, named Klukas, Lobel (Lobelos), Kosenetz (Kosentsiz), Muchlo, and Khrwat (Khorvalos), and two of their sisters, named Tuga and Buga. Some suspicion has been cast on these names. Khrwat seems to be the eponymos of the race; two others of them mean tarrying; while the two girls' names are equivalent to joy and sorrow. (Evans, "Bosnia," etc., xx.) But the names do not seem to me to be other than perfectly natural ones. They entered Dalmatia, and having fought for some time against the Avars, who inhabited that district (*i.e.*, from about 634 to 638), they killed some and some they subdued, and from this time the Croats occupied that country. The Avars were not entirely dispersed, and the emperor tells us that when he wrote, three centuries later, remains of them were still to be found there who retained their name of Avars. (Constan. de adm. Imp., 30; Stritter ii, 389.) Schafarik suggests that the Morlaks, who have been by several writers made out to be of Tartar or Kirghiz origin, are really descended from these Avars. He also suggests that it was from this fact that Avar, title of Ban, was first adopted among the Croats, and afterwards by other Slavic races. (*Op. cit.*, ii, 278, and note 2.)

In regard to these Morlaks, Sir Gardner Wilkinson collected some curious information. He says the first notice of them is about the middle of the fourteenth century, when they would seem to have been the occupants of the mountainous district of north-western Bosnia. After that period they migrated with their families and flocks from Bosnia as the Turks advanced there; and immediately before their settlement in Dalmatia, their principal abodes were in the districts of Corbavia and Lika, to the north and north-east of the River Zermagna. "Though of the same Slavonic family as the Croatians," he says "and others of that race, some have supposed a difference in their appearance, and a superior physical conformation." This he

assigns to their hardy life and pure climate. Farlati supposes the name to be compounded of Greek and Slavonic, and that it was originally Makro vlahi, and that they received the latter name from their dark or black colour. Some have indeed called them Black Latins. ("Historicus Dalmata," vi, 5.) This etymology is much more reasonable than that adopted by Wilkinson from *mor* the sea; and *vlah*, a term given in Slavonic to all those who do not speak German, and even to the Latins, and which is the root of Valachi Wallachians. (Wilkinson, "Dalmatia and Montenegro," ii, 296.) An inland race of mountaineers would scarcely receive a name derived from the sea; and the former derivation is very consistent with the theory, quoted from Schafarik, which makes the Morlaki descendants of the Avars. It would be curious to examine their dialect from this point of view, and now that so good and enthusiastic a student of Slavonian as Mr. Evans lives at Ragusa, we may perhaps hope that an inquiry in this direction may be made. As to the title of Ban, Schafarik says, that Bayan was a title in use among the Avars, and was used of a subordinate dignity to that of Khakan or Khan, and it is almost certain that the Slaves derived it from the Avars. (*Id.*, ii, 278, note.) He adds elsewhere that it is probably derived eventually from the Persian Bayan. (*Id.*, ii, 257, note 3.) Wilkinson says the principal nobles of Hungary Bohemia in the middle ages were called Pan; the same title was given in Poland to the first dignities of the State, and it now means Lord, Mr. or Sir. (*Op. cit.*, i, 25.) The Austrian Governor of Croatia is still known as the Ban.

So far as we know, the Croats were the first Slaves who permanently settled in Dalmatia, in Pannonia beyond the Save, and in Präwallis. There had been several previous raids of Slavic invaders into these districts in 548, 550, 551, and 552, but these were only temporary invasions, and the Croats were the first to actually settle there. (Schafarik, ii, 237.) Although Constantine does not tell us that they settled down as dependants of the empire, it seems almost certain from their subsequent history that they did so. (*Id.*, 278, note.) A portion of the Croats who entered Dalmatia detached itself from the main body, and occupied Illyria and Pannonia. (Const. Porphyry, *op. cit.*; Stritter, ii, 391.) This detached body seems to have settled, in fact, in that part of Pannonia situated between the Danube and the Save, and known as Pannonia Savia, with its chief town at Sisak, and partly also in Illyria, where there was subsequently a Croat gau. (*Id.*, 279.)

There were thus constituted two Croat States, one in Dalmatia, with its chief towns of Belgrade (Zara Vecchia), on the Adriatic,
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and Bihatsch on the Una; and a second whose capital was Sisak at the junction of the Kupa (Kulpa) and the Save. According to Constantine, the boundaries of the land possessed by the Croats of Dalmatia were, on the south, the river Zetina and the towns of Imoski and Liwno. On the east, the Urbas, with the towns of Yazze and Baynaluka. On the north the Drave, the Kulpa, the town of Alibunon, and the Arsia in Istria; and on the west the Adriatic. (Stritter, ii, 395, note; Schafarik, *op. cit.*, ii, 279.) They also doubtless occupied several of the Dalmatian islands and the Istrian peninsula, whose inhabitants speak the Croatian dialect. (Schafarik, *id.*) In Croatia, Constantine says there were eleven Zupas, *i.e.*, gaus: Chlewiana, *i.e.*, Chlewno (the modern Liwno, in Herzegovina); Tsentsina (Zetina); Imota (Imolski near the Zetina); Plewa (the modern Pliwa); Pesenta (the mountain of Wesenta, south of the Yayze); Parathalassia (Primorje, a district between the Zetina and the Krka); Brebera (Bribri, between the Krka and Lake Karin); Nona (Nin, on an island in the strait of Puntadur); Tnina (Knin, on the river Krka); Sidraga (the district of Belgrade or Zara Vecchia); Nina (the district on both sides of the Dzrmanja, including the town of Byelina); Kribasa (the later county of Krbarva); Litsa (the military district of Lika); Gutsika (the open country of Gazko.) (Schafarik, *op. cit.*, ii, 295-6.) The three last gaus were subject to the Ban, an officer of whom I shall have more to say presently.

From the names of these gaus and the towns which they enclosed, it would seem, says Schafarik, that the division of Dalmatian Croatia did not reach northwards to the Sen and the Otoschatz; and this northern frontier strip from the Arsia and from the mountain Alibunon (Yawonirk?) to the Kulpa, belonged to the other section of Croatia, whose princes had authority as far as the Danube and Syrmia. Croatia therefore was bounded on the north by the Wends, who as early as 631 had gained possession of Friauli on the north-east (Schafarik, by a *lapsus penicilli* says north-west) by the Pannonian Avars, and on the east and south by the Serbs; from whom the latter were separated by the rivers Urbas and Zetina; and it included the modern districts of Turkish Croatia, Dalmatia and some of its islands, a part of the military frontier, and of Austrian Croatia, Istria and Carinthia.

Schafarik remarks that it is well to remember that there were certain towns on the coast which having been for a long time subject to the Greek Empire, secured for a while their independence, but ended by becoming tributary to the Croats. These were Rausium or Ragusa, called Dubrownik by the Slaves; Tranguarium, *i.e.*, Trogir or Trau; Diadora, *i.e.*,

Zader or Yadera; and the islands of Arbe, *i.e.*, Rab; Wekla, *i.e.*, Kark or Kerk; and Opsara, *i.e.*, Osero or Absorus. To these towns and islands and the neighbouring district, the name Dalmatia now became more and more restricted, in order to distinguish them from the neighbouring Croatian districts proper; and their inhabitants, as Constantine tells us, retained the name of Romani or Romans. (Schafarik, ii, 280.) Their descendants are still well known as the so-called Italians of the Dalmatian coast.

Having considered their country, let us now turn to the history of the invaders. When he had persuaded them to settle down on his frontiers, the next thing which the Emperor Heraclius was solicitous about was the conversion of the Croats to Christianity. He accordingly applied to the Pope, who sent a number of priests to baptise them. Their prince at this time was named Porga, the son of one of the five brothers already named. Porga is a curious and uncommon name, apparently not Slavic; and Schafarik compares it with Purgas, the name of a Mordwin chief mentioned in the year 1229 (*op. cit.*, ii, 280, note), a fact which makes it probable that the Croats were at this time subject to alien princes, perhaps of Avar descent.

The conversion of the Croats by missionaries of the Latin Church, and not by those of the Eastern Church, became a very important fact in later days, and a fact which still forms a notable element in that congeries of political difficulties, the Eastern Question. The Pope who was reigning at the time was John the Fourth who entered into close relations with the new converts, put them under the protection of the Holy See, and made them promise, probably, at the instance of the Byzantine Court, to abstain from making any attacks on other countries. This promise they further ratified in writing, and it was honestly carried out. Being restricted from making aggressive wars, they partly occupied themselves in agriculture, and partly in trade, their ships frequenting the various towns on the Adriatic. (Schafarik, ii, 281.) They accordingly became rich, and their country populous. Constantine tells us they had a force of 60,000 cavalry, and 100,000 infantry; 80 ships, each manned by 40 hands, and 100 others, with lesser crews of 20 and 10 men. (Stritter ii, 396). He tells us also there was an archbishop and a bishop among them, with priests and deacons. Through their influence and that of several other ecclesiastics, notably John of Ravenna, Archbishop of Spalato, they were not only grounded in the faith, but were also closely attached to the Empire. According to Thomas, Archdeacon of Spalato, the first bishoprics created in Croatia were those of Dubno (Deluminium) and Sisek (Siscia). (Schafarik, 281, note.) We thus find the Croats attached

politically to Byzantium, while their religious ties were with Rome. Unlike their Slavic neighbours, they were never subject to the kings of Bulgaria, with whom, however, they lived on amicable terms. We have hardly a notice of the Croats during the next one hundred and fifty years; in fact, the only reference to them during this interval, given by Schafarik, relates to an invasion of Apulia by a host of Slaves who came from the Adriatic. "*De Venetiarum finibus*," are the chronicler's words; as they are said by the annalists to have gone with a multitude of ships, it is probable they were Croats. (Schafarik, 282, note 1.) We do not meet with any further references to their country till we come to the days of the Frank conqueror "Karl the Great." Having conquered the Lombard kingdom in 774, and ravaged Friauli in 776; he then in his struggle with the Bavarian prince Tassilo and his Avar allies, overran the Wendish districts on the Ens in the Tyrol, Karinthia, and Istria. This extension of the Frank arms led inevitably to their speedily overshadowing the Croats. The rivalry between the Byzantine and Romish churches had begun its work, and was at this period intensified by the ill-feeling between the Greek Emperor and his grandees. On the bloody defeat of the Byzantines in Italy in 788, the Franks overran Istria, Liburnia, and Pannonia on the Save. They annexed these districts as far as the Danube, and appointed Marquises or Margraves and Counts there, on whom the native Slavic chiefs became dependent. This was in 789. Thus the Grand Prince (Veliki Zupan), who had his seat at Sisek, became a Frank subject. The Franks gave him the title of rector, and made him immediately dependent on the Marquises of Friauli. It was probably from this event that the district of Syrmia was called Frankokhorion, while the town now called Mandyelos, the Budaliia of the Romans, received the name of Frankavilla. (*Id.*, 283.) Hitherto the Dalmatian towns had not been interfered with; according to Eginhardt, this was because of the friendship of his master for the Byzantine Emperor (Egin. "*Vitæ Car.*;" Pertz, i, 451); but in the year 806, Paulus, Duke of Zara, and Donatus, bishop of the same town, went to him with rich presents, and also apparently with their submission. (Eginhardt; Pertz, i, 133.) This change of masters led to considerable ill-feeling between Karl and the Emperor Nicephorus. This was terminated by a treaty in 810, by which the latter transferred his now merely nominal sovereignty over the Dalmatian Croats to the Frank Emperor, while he retained control over the towns of Zader, Trogir, Spalato, Ragusa, and the islands of Osero, Rab, and Kerk, *i.e.*, of the district now called Dalmatia. (Schafarik, 282-3).

Thus the Croats became to a large extent subjects of the

Frank Empire. On the death of the Great Karl, the Franks began a somewhat persecuting policy towards them. In 817 a dispute arose between Kadolach, Duke of Friauli, and the Byzantine Emperor Leo the Armenian, as to the boundaries of Dalmatia. The Greeks presented their complaints on this matter to the diet held in 817 at Aachen, and the Emperor sent Albgar the son of Miroch, to settle matters on the spot. (Eginhardt, "*Annales*" sub ann. 817.)

Kadolach appears to have treated the Croats on the Save very arbitrarily, and Liudewit their prince sent an embassy with complaints to the diet at Vannes. (Eginhardt, "*Annales*," 818.) No notice having apparently been taken of his complaints, he rebelled, and an army was sent against him, which seems to have been partially successful, and Liudewit sued for peace. As his terms were not reciprocated by the Emperor, he persuaded the neighbouring Wends and also the Timociani, who had recently fallen away from their allegiance to the Bulgarians and submitted to the Emperor, to rebel. Meanwhile, Kadolach, the Marquis of Friauli, caught the fever and died, and was succeeded by Baldric, who marched into Carinthia, where he encountered the army of Liudewit, and having defeated it on the Drave, drove him out of that province.

He was attacked on another side by Borna, the chief of the Dalmatian Croats, who was apparently in alliance with the Franks. The struggle took place on the River Culpa, but Borna was deserted by the Guduscani, and was defeated. In this battle Dragomus, the father-in-law of Liudewit, who had been treacherous to his son-in-law, and had deserted him, perished.

Borna, on his retreat homewards, succeeded in reducing the Guduscani once more to obedience. In the winter Liudewit invaded his borders, and ravaged them with fire and sword. Borna, however, revenged himself, killed 3,000 of the enemy, captured 300 of their horses, and recovered much booty. (Eginhardt, "*Annales*," 819; Pertz, i, 205-6.) Thus did the Croats imitate a very common policy among the Slaves, and tear each other's throats, while the Empire stood by approvingly.

In January, 820, it was determined at an Imperial diet, to send three armies simultaneously into the country of Liudewit. Borna assisted at this diet with his advice. One of these armies marched through the Norican Alps; a second by way of Carinthia; while the third went through Bavaria and Upper Pannonia. The first and last were obliged to return again, but the one which marched through Carinthia defeated the enemy three times, and crossed the Drave; but Liudewit defended himself bravely, shut himself up in his capital; and the Franks

contented themselves with devastating the country round, and then retiring. They had however struck terror into some of the rebels, for we read that the people of Carniola who lived about the Save, and close to Friauli, submitted to Baldric; and the Carinthians, who had sided with Liudewit, also submitted. (Eginhardt, "Annales," ad ann. 820.)

Meanwhile Borna the chief of the Dalmatian Croats, died. He is called dux Dalmatiae et Liburniae by Eginhardt. He was succeeded by his nephew Ladislavl. The Franks once more entered the country of Liudewit and ravaged it in 821. In 822, they sent another army, on the approach of which he was constrained to fly from his capital Sisek, and to escape to the Servians (Schafarik says probably to Bosnia); Eginhardt tells us he there murdered one of the princes of the country, and appropriated his territory. He then sent envoys to the Franks. (Eginhardt, "Annales," 822; Pertz i, 209.) He had however again to fly, and now escaped to Dalmatia, where having lived for some time with Liudimysl, the uncle of Borna, he was at length put to death by him. This was in 823.

This ended the independence of the Croats on the Save, who were now united with the Dalmatian Croats.

This internecine war among the Croats was due no doubt partly, as Schafarik says, to the jealousy created by a section of them being subject to the Franks, and another section independent; but I believe another reason not referred to by that historian was, that the Croats of the north were still very largely pagans, while their southern brothers were Christians. The Frankish raids to which it gave rise were accompanied with terrible barbarity, and the Emperor Constantine tells us how even children at their mothers' breasts were killed and thrown to the dogs. They kept up the struggle however with the persistence of their race, killed their prince Liudimysl the Frankish *protégé*, and also, according to Constantine, the Frank commander Kozilimis. This war took place during the years 825-30, and during the reign of Prince Porin. Being once more free the Croats turned to the Pope, asking him to send people to baptise them, and also asking for bishops. (Constantine Porphy.; Stritter, ii, 392.) Porin ruled over the whole of the Croats on the Adriatic, whose borders extended probably as far as the modern Slavonia; under him was a Ban who had authority over three gaus. Slavonia itself, i.e., the country between the Drave and the Save, or at all events its eastern portion, was at this time subject to the Bulgarians, who had pushed their authority beyond the Drave. (Schafarik, ii, 286.)

The various towns of Dalmatia which had been subject to the Greeks, fell away during the reign of Michael the Second

(820–29), and Zader set up an independent dux or doge of its own. (*id.*, 286; Stritter, ii, 88.) On Porin's death, he was succeeded for a short space by Moislaf, who in 836 renewed the peace with Peter Tradonico the Doge of Venice. His successor Trpimir in 837 ratified the gift of certain revenues which had been made by his predecessor Moislaf to the church of Split or Spalato, and the deed by which he did it is the oldest one extant relating to the Croatian princes. In his days there came from the neighbouring Frank districts (*i.e.*, from Istria and Carniola) a pilgrim named Martin, dressed in secular garb. He did many wonders, and although a pious person, he was infirm and lame in his feet, and was carried about by men. He devoted himself to the conversion of the people, and was so successful, that they desisted from acts of piracy on their neighbours, and ceased attacking them except in self-defence, and we are told the Croats became attached to seafaring, and frequented the coast as far as Venice. (Constantine Porphyrr.; Stritter, ii, 394–5.) Unlike the neighbouring Slaves, the Croats were never subject to the Bulgarians, nor did they even pay them tribute. They only had one struggle with them, in the days of Michael Boroses of Bulgaria, who failing to beat them, made peace with them, and gifts were interchanged. (*Id.*, 395.)

Between, 868 and 878, we find that Sedeslaf or Sdeslaf, a relative of Trpimir's, and a *protégé* of the Byzantine Emperor Basil, the Macedonian, was Prince of Croatia. He was probably a usurper, for Trpimir left sons behind him. During his reign, the Croats again became dependent on Byzantium, and transferred their ecclesiastical sympathies from the Pope of Rome to the Patriarch of Constantinople. (*Id.*, 287.)

The chief reason for this, was the publication of the Slavic Liturgy in the Cyrillic character in Bulgaria, Pannonia and Moravia, which so pleased the neighbouring Croats and Serbs, that they sent to ask teachers from the Emperor Basil, and accepted baptism from them. It is probable that the Slavic Liturgy was at the same time promulgated in Croatia, as would appear from a papal brief issued when the Croats returned to their allegiance to him. (Schafarik, ii, 287.)

At this time all the mainland of Dalmatia was occupied by Slaves, and the citizens of the town were chiefly Romans, who also inhabited the islands off the coast. As the latter, however, were terribly harassed by pirates, no doubt Saracens, and were in danger of extermination, they appealed to the Croats to allow them to move to the mainland; but they refused permission, unless they paid tribute; upon which they appealed to the Emperor Basil, who ordered that they should pay the same tax to the Croats

which they had paid to the imperial prefect; and from this date, Aspalathus, *i.e.*, Spalato paid 200 gold pieces; Trogir, 100 gold pieces; Diodora (*i.e.*, Zader), 110 gold pieces; Opsara (Osero), 100 gold pieces; Arbe (Rab), 100 gold pieces; Becla (Wkla), 100 gold pieces. This was in addition to a certain tax on wine and other products. (Const. Porp.; Stritter, ii, 398–9.) In return apparently for this favour, the Croats and Servians sent a contingent to help the Greeks at Bari, in the year 888, when they were attacked by the Saracens. (Schafarik, ii, 287.)

In May, 879, Sdeslaf was killed by Branimir, who broke off the connection with the East, and placed the Croats once more under the ecclesiastical authority of Rome, and sent Theodosios, the "Diaconus" of Nin, to Rome to be consecrated a bishop.

John, Archpriest of Solina; Vitalis, Bishop of Zader; Dominicus, Bishop of Osero, and others who were referred to, did not wish to receive their authority from Rome, and it may be mentioned as a proof of the strength of the Eastern party, that Maximus, the new Archbishop of Spalato, was consecrated by Walpert, the delegate of Photius, Patriarch of Aquileia. And it was a long time before the Greek cult was completely driven out of Croatia.

During Branimir's reign, the Croats were independent, both of the Byzantines and the Franks. In 882, Branimir was succeeded by Mutimir or Muntimir, the younger son of Trpimir, who had defeated his elder brother Kryesimir. In a deed of his, dated in 892, we first meet with certain high dignitaries, as the Maccecharius (? Magnus Cococus * or chief cook), Cavelarius, Camerarius, Pinzenarius, Armiger. (Schafarik, ii, 288–9.) Muntimir must not be confused with the prince of the same name who was ruling at this time in Servia.

Muntimir was apparently succeeded by his elder brother Kryesimir, whose authority he had usurped. The latter was reigning in 900, and continued to rule till 914 (*id.*, 289), when he was succeeded by his son Miroslaf, who was killed three years later by the Croatian Ban Pribina. (Stritter, ii, 396.) He was not allowed to keep his ill-gotten throne long, for in 920 we find a prince named Tomislaf, who is known from a letter to the Pope John the Tenth. During his reign, and in the year 925, a synod was held at Spalato, where the use of the Slavic Liturgy was forbidden. At another synod in 928, three new Croatian bishoprics were founded at Skradin, Sisek, and Duwno. In 924, the Serbian prince Zacharias, with a great number of his people, sought shelter in Croatia from the attacks of the Bulgarians. These emigrants did not return home till ten years later. It was this close alliance of the two peoples,

* Or perhaps Claviger, from mediæval Greek *Matsouka* and low Latin *Maxuga*, *mazuca*, a key.

which probably led to the invasion of Croatia in 927 by Alogoboturs, the general of the Bulgarian king Simeon; an expedition which had an unfortunate end, the invaders being badly beaten. In 940, Godimir, or Chedomir, became the ruler of Croatia, and he was succeeded in 958, by his grandson Kryesimir the Second, called the Great, who restored his country to its ancient prosperity, which had much decayed during the recent revolutions. He was succeeded by his younger son Drzislaf. He was the *protégé* of the Greek Emperors Basil and Constantine, and as a consequence of the doubtless renewed prosperity of the country, we find him forsaking the ancient title of Veliki Zupan or Great Zupan, and adopting that of king, which was borne by his successors. According to the frail testimony of Thomas of Spalato, says Schafarik, he joined Neretwa and Zachlumen to his kingdom. On the other hand, we find that the coast towns of Dalmatia, Zader, Trogir and Spalato, and the islands of Kerk, Rab, and Kortschula, which had been for one hundred and twenty years tributary to the Croats, were now conquered by Peter Urselus the Second, Doge of Venice, who styled himself Dux Dalmatiæ. (*Id.*, 291.)

Wilkinson, in reporting the results of this war, says, "The Croats were also expelled from the Isle of Pago, which was restored to Zara, and Šurigna was sent by his brother Mucimir (? Drzislaf of Schafarik) on a mission to the Doge at Trau, with instructions to make peace on any terms. A treaty was therefore concluded, by which the King of Croatia promised to abstain from all acts of aggression in Dalmatia, and sent his son Stephen to Venice as a hostage for his fidelity. He there received an education worthy of his rank, and afterwards married Nilcea, the daughter of the Doge. (*Op. cit.*, ii, 227.)

In the year 1000, Drzislaf was displaced by his elder brother Kryesimir the Third (the first as king). Catalinich says he was killed in an attempt to relieve the island of Pasmaus. (Wilkinson, *op. cit.*, ii, 226, Kryesimir.) He had been previously granted the title of Patrician by the Greek Emperor. He tried to drive the Venetians out of Dalmatia, but was defeated by them in 1013. Bulgaria and Servia had both submitted to the throne of Byzantium, and according to Zonaras and Cedrenus, their example was followed by that of the Croats. But Schafarik has shown that these writers have used the term Croat in a mistake for Serbian. (*Op. cit.*, ii, 291.) Kryesimir the Third was succeeded in 1035 by his son (? his nephew, Wilkinson, *op. cit.*, 227-8), Stephen the First, whose wealth is proved by the rich presents he made to the Church. By his second marriage with Wetenega, the widow of the Patrician Doym of Zader, he had two sons; one of whom who

succeeded him as Peter Kryesimir the Fourth (or second as king), was the most famous of all the Croatian rulers. Soon after his accession in 1050, he recovered the Dalmatian towns from the Venetians; the archbishop and city of Spalato, and the Bishop of Rab acknowledged him as their suzerain. He thereupon took the title of King of Dalmatia. In 1066 Zara was again wrested from him by the Doge Domenico Contarini. (*Id.*, ii, 229.) He introduced several ecclesiastical reforms. He planted new bishoprics at Belgrade on the coast, and at Knin; and his sister Cica founded the nunnery of Sta. Maria at Zara, of which she became the first abbess. The Bishop of Kief was nominated High Chancellor of the realm. His diocese reached as far as Drau. Under him a famous synod was held at Spalato, where the Slavic Liturgy was again prohibited. Methodeus was proclaimed as a heretic, and the Cyrellian writing was denounced as an invention of the Arian Goths. It was probably less from its Arian quality than from its having originated with the Greek Church that it was unpopular. Before his death, which happened in 1074, Stephen adopted his nephew Kryesimir as his successor; but this was not carried out, for the throne was seized by one named Slawisha, of whose history little is known. We read however that in November, 1075, he was captured and carried off as a prisoner to Apulia by the Norman chief Amikus. Wilkinson says the Normans were called in by the partisans of the dispossessed Stephen, who had retired to Spalato to the Benedictine convent of Saint Stephen. (*Op. cit.*, ii, 229.) The throne was then occupied by Demeter Zwonimir, who had been Ban of Croatia, and had married the daughter of St. Stephen of Hungary and sister of Vladislaf, but had been deposed by Slawisha. (Wilkinson, ii, 230; Schafarik, 292.) To strengthen his position, he, by the advice of the Archbishop Laurence of Solina, acknowledged the Pope as his suzerain, who thereupon sent him the emblems of the royal dignity, and he was duly crowned on the 9th of October, 1076, in the church of St. Peter at Old Solina. (*Id.*, 293.) But things were now going badly with the Croats. The Normans appeared in crowds on the coast, while the Venetians endeavoured to recover their lost authority on the Dalmatian shore. On Zwonimir's death in 1087, he was succeeded by Stephen the Second, the exiled nephew of Kryesimir the Fourth. He had taken refuge in a monastery, as I have said from which he now withdrew, and was duly crowned at Sebenico by the Archbishop on the 8th of September, 1089; but he died the following year, the last representation of the race of the Drzislafs. His death was followed by a terrible civil strife, in the midst of which one of the Zupans offered the crown to the brave Hungarian king

Vladislaf. Accepting the invitation, he marched with an army to Modrush, overran the country, and nominated his nephew Almus as its king. Later he founded the Bishopric of Agram (the Slavic Zagreb). On the death of Vladislaf, he was succeeded by Koloman, who seized upon Bielogorod (now called Zara Vecchia) (Wilkinson, 231, note), and apparently displaced Almus. The Zupan Peter thereupon rose in rebellion against him, and he in turn marched an army into Croatia. The Croats in the presence of this danger seem to have stopped their civil strife, and divided the land among twelve Zupans.

They collected their warriors, and awaited the attack of Koloman on the Drave. Not being certain of victory, the latter made proposals of peace, in which he engaged to protect their liberties. These overtures were successful, and peace was duly ratified, and the Croats acknowledged Koloman and the Hungarians as their masters; and he undertook to respect their rights, freedom, and laws. A Zupan (probably Peter is meant) who was discontented with this peace, was slain in a fight in the mountains of Gwozdansko; and Koloman was crowned at Biograd by the Archbishop Crescentius, of Spalato, with his bride Bussita, a daughter of the Norman Count Roger. (Wilkinson, ii, 231.) This was in 1102. Thenceforward Croatia was governed by a deputy of the Hungarian king, who was styled the Ban of Croatia, and the Hungarian kings took the title of kings of Croatia and Dalmatia. Some of the Dalmatian islands were seized by the Venetians, who after many bloody struggles, planted their authority also in several of the towns on the coast. (*Id.*, 294.) The story, and a very interesting one it is, of the fierce strife between Hungary and Venice for these Dalmatian towns, has been told in detail by Sir Gardner Wilkinson in the work already quoted (*op. cit.*, chapter ix, *passim*), but it forms no part of our present subject.

Modern Austrian Croatia is divided into two well marked sections: Provincial Croatia, comprising the three districts of Agram (Zagreb), Warasdin, and Kreutz, with the maritime district adjoining; and secondly, Military Croatia, until recently divided into two generals' commands, and comprising eight regiments. Besides these, to which alone the name of Croatia is now generally applied, there were comprised in ancient Croatia the northern part of the modern Dalmatia as far as the Zetina, the north-western part of Bosnia as far as the Urbas, and the modern Slavonia. In early times it also included Istria, and although the latter was detached from Croatia about the end of the eighth century, it still retains a Croatian dialect. Over all this district the Croats were the dominant race, and it was all known in early times as Croatia, and included, as I have

said, three well marked divisions, namely Pannonian Croatia, or Croatia on the Save, Provincial Croatia, and Dalmatia.

The eastern portion of ancient Croatia is now called Slavonia; and it is interesting to trace the history of this name. From the earliest times to the days of Matthias Corvinus (*i.e.*, 837–1492), the rulers of Croatia bore no other title than that of princes and kings of Croatia and Dalmatia. Foreigners, however, occasionally applied the generic name Slavi to them. Thus in a letter from the Emperor Louis the Second to the Emperor Basil, in 871, they are called Slavini, and their country Slavonia. In a brief of Pope John the Tenth, 914–29, to John the Fourteenth, Archbishop of Spalato, it is called *Slavinorum terra*, *Slavinia terra*, and in another brief of Innocent the Fourth, Slavonia terra. (Schafarik, *op. cit.*, ii, 307.)

During the reigns of Bela the Third, 1170–96, and Andrew the Second, 1205–35, the section of Croatia lying between the Drave and the Save was carved out into an appanage, and was called the Duchy of Slavonia (*ducatus Slavoniæ*). King Vladislaf probably suspicious against John Corvinus, who ruled the Duchy of Croatia, took in 1492 the title of King of Slavonia. After the battle of Mohacz, a portion of Slavonia was occupied by the Turks, and we then find the name Croatia limited to that portion of it comprising the districts of Agram, Warasdin, and Kreutz, which still remained subject to the Hungarians; while the other portion, which was occupied by the Turks, and was only recovered at a later day, namely, the districts of Veröcze, Posega, and Syrmia, received the name of Slavonia, which it still retains. (*Id.*)

All the Croats, except a section who occupy the north-western mountain district of Bosnia called Kraina, and often called Turkish Croatia, as far as the river Urbas, are now subject to Austria. Kraina was a part of the ancient Croatia, and was probably detached from it at the end of the fourteenth century, when Tuarko founded the kingdom of Bosnia, and appropriated considerable districts from his neighbours; and it fell apparently with the rest of Bosnia into Turkish hands.

The Croats were originally no doubt a homogeneous race, and hardly distinguishable from the Servians, of whom, in fact, they formed a section.

At present there are, however, two well-marked Croatian dialects; one prevails in Provincial Croatia and in the country of the St. George and the Kreutz or Cross Regiments, while the other prevails in the other districts of Croatia in the Litorale and in Slavonia. The latter apparently hardly differs from the dialect of the districts occupied by the Servians proper. The

former perhaps originated in a mixture of the invaders with the Slovenians of Carinthia, etc., otherwise known as Wends. (*Id.*, 308-309.)

As I have said, the Croats and the Servians were originally one race, speaking one language, and having one history. The great distinguishing feature which has made their history run in separate grooves, has been the fact of the former being Roman Catholics and the latter attached to the Greek Church. This has given an entirely different direction to the sympathies of the most patent social force in the country, namely, that of the priesthood. The Croats also being further removed from such dangerous neighbours, were not so sophisticated by Bulgarian or Turkish domination, and retained their practical independence, although subject to the Hungarian Crown.

But we must never forget that in origin and in race they belong to the great Servian stock, which will, we trust, occupy us in our next paper.

More CASTELLIERI. By RICHARD F. BURTON and MESSIEURS ANTONIO SCAMPICCHIO (LL.D.), of ALBONA, and ANTONIO COVAZ, of PISINO (Deputy to the Diet, etc.).

SECTION I.—THE SEABOARD OF ISTRIA.

I HAVE obtained the consent of Dr. Antonio Scampicchio, and associated his name with my own, in these pages, of which many are translated from his letters and notes. He has also at my especial request, been good enough to write out for me the rustic Slav songs common about Albona, of which short specimens conclude the next section, and to translate into Italian my first paper, "Notes on the Castellieri." I have also ventured to add to these pages the name of Sig. Antonio Covaz of Pisino, Deputy to the Istria Diet; most of the excursions in the southern peninsula were undertaken by his advice, and many of the most important details come from his practised pen.

The little Istrian peninsula, which still preserves its classical name Istria or Danube-land, and is shaped on the map like a greatly reduced Africa, as the poet says, is geographically distinct from the rest of the Austrian world.

To north, west, south and south-east, this Xth. Regio of old Rome is bounded by the Gulf of Trieste, by the Adriatic, and by the Quarner or Quarnero. Sinus Flanaticus (not Fanaticus) of which the Florentine Francesco Berlingeri says:—

"E Flanatico Capo e punta escorta.
Per le molte tempeste ora e Carnaro
Da naufraga detta gente morta."

The eastern frontier, which connects the isosceles triangle with south-eastern Europe, and separates it from the adjoining province Unter-Krain, is strongly marked by a sub-range of the mountains primarily named Albia, Alpionia, and Okra, the foot-hills, called by the Slavs Verchia, and now Monte della Vena: viewed from the summits to the east, they appear a long blue-green line, trending from N.N.W. to S.S.E. with the Trieste-Fiume high-road running along their western foot-hills. From the Tricorno, or Dreiherrnspitze, the Latin Tullum, Slav Triglava, corrupted Terglou, the apex (9036) feet of the Julian (not the Carnian) Alps extends to the south-east a *massif*, broken by the Adelsberg-Laibach river-valley cut by the Vienna-Trieste Railway, and again rising to its culminating point (5,322 feet), Mons. Albinus or Albianus, Mont Albiano, Monte Albio, or Neviso; the German (Krain) Schneeberg, and the Slav Sneznik, both signifying the same thing. The Vena, which must be considered as the western buttresses and foot-hills of the great knot, begins north-west or near Trieste,* with the Monte Tajano, the Slav Slavnik, which *may* mean the "glorious," the two paps rising immediately behind the great Austrian Emporium; it trends S.S.E. to Monte Oscale, or rather Monte Sia (1,238 mètres), near Sijane, and then bending with many a curve due south, and eventually to S.S.W., it subtends the eastern arm of the triangle; culminates in the monarch of Istrian mountains (1,394 mètres), Monte Maggiore, and finally sinks into the Quarnero at the Punta Negra near Albona.

From this chain with a double name, Vena and Caldiera, the surface of the Istrian peninsula falls gently westward in sub-ridges and foot-hills and gradual inclines, till it meets the tepid blue waves of the Adriatic. The complexion area, variously estimated at 3,410 to 4,945 square kilometres, is physically divided into three regions, bands running parallel with the Vena range; the upper or Okran, of dove-grey nummulite; the central, sub-Okran, or Pedemontan, of variously-tinted eocenian sandstones; and the lower or maritime, where the monotony of growths, light green and dark green, are relieved by the bone-white chalk, barren of petrifications, and the fire-bleached fertilising dolomite.

I have often travelled through and round the Istrian peninsula by land and sea, and few pictures known to me are more

* Baron Carl von Czoernig (jun.) estimates this apex at 1,700 mètres, in his paper "Der Krainer Schneeberg."

amene and interesting. The scenery is Italian, yet not quite Italy, because it has a *cachet* of its own. The port-towns are pure Romano-Venetian, but with a peculiar type, suggesting fragments of the sea Cybele, built not among the waves, but upon rocky headlands. The inner towns preserve the wild and romantic aspect of mediæval fortresses in the Apennines. Both are cities in miniature, the village being unknown; and both may be of immense antiquity; here pre-historic remains are brought to light; there we find classical inscriptions and reliefs built up in the walls. Nor is the people less picturesque than its surroundings; there is a regular Italo-Istrian type, with short and straight features, pale-olive skin, and black hair, often curly; tall and slender figures, like the Guanche Spaniards of Teneriffe, and chests and haunches comparatively narrow. Small as it is, the peninsula is held by a dozen different races, mostly Italo-Venetian and Slavs, introduced between A.D. 600 and 1657. The Austro-Germans are found at Trieste, Capodistria, Pola, and the other Government establishments. The Slavenes or ancient Wends (Krainer Slavs), hold most of the northern regions. The Cici, mostly charcoal burners, and generally held to be Wallachs of ancient date, now Slav speakers, but retaining vestiges of an older tongue, are settled in High or Eastern Istria, at the head of the Rjeka (upper Timavus River), and extending into the middle regions; whilst more modern Wallachs occupy the Valarsa and Bedo, Susgueirzza and the lands to the north and north-east of the Lago di Cepié (Lacus Arsice) Istria's only lake. Fianona is known to have been captured and occupied by Uzkoks, Uscoichi, the "Jumpers," or pirates of Sign, Signia, or Zengg, the Senia of the Gallic Senones; and Serbo-Croats hold the ancient Albonese Republic and that part of old Liburnia which extends from Fiumara to Fiume. The Morlaks (Morlacchi)* occupy the Polisana and the country extending from Dignano to Pisino; they are the worst of the race, bandits when they can be, and at all times assassins. Finally, a single village, Peroi,† near Pola, as has been said, is Montenegrin, and its population is dying out, they say, from persistent inter-marriage. A very polyglottic peninsula! Even Trieste is trilingual: the Government speaks Austro-German; the citizens Veneto-Italian, and the suburbans Slovene.

Each of those races has not only its own dialect, but its peculiar costume, its habits and manners, its favourite industry, and its political prepossessions. As a rule, they are remarkable

* I have offered a few details concerning the Uzkoks and the Morlaks, in "Soeivizka" etc. ("Cornhill Magazine," No. 191, November, 1876.)

† See first paper (p. 28), concerning the "little Greek Colony of Peroi. They came from Cernizza of Montenegro in A.D. 1657.

for hard work, orderly conduct and civility, and even courtesy, to strangers.

As in the Crimea, the principal productions are salt and wine, the climate being somewhat too dry for cereals; the salinas are mostly on the northern coast, and the vine is everywhere. A few head of cattle, sheep, and goats are bred on the barren uplands; a little grain, especially the hardy maize (fromenton, kukuruz) on the damper lowlands; and pisciculture, which like viticulture, is being civilised and developed, occupies the coast.

There are mines of lignite coal at Carpano, Pedena, and other places; pyrites, alum, and vitriol at S. Pietro di Sovignano; silex (saldame) for glass works about Pola; mineral springs, cold at Isola, near Capodistria, and hot at S. Stefano, near Pinguente; while clays for fire-proof bricks, and quarries of excellent stone, freestones, lithographic limestones, and marbles are found almost wherever they are wanted. The harbours were declared free-ports in 1861. The roads are tolerable and often good; diligences traverse the country, and a branch railway, opened on the Imperial and Royal birthday (18th August, 1876), bisects it, running from Divaca on the Süd-Bahn or Great Southern, to Canfanaro, on the southern edge of the gorge-like Canale di Leme); here it forks; one line running westward to Rovigno, the other south to Pola. Almost every village has its inn, and these are no longer what they were a few years ago:—

“Nasty, dusty, fusty,
Both with smoke and rubbish musty.”

(As old Richard Brathwait's "Itinerary" complained). Spring and autumn are delightful, as might be expected in these latitudes, with an altitude ranging from sea-level to an average of over a thousand feet, and the traveller should know that a fortnight can be spent in Istria with pleasure and profit.

In this paper I propose to take the "Lloyd's" steamer from Trieste to Fiume, landing at the places where pre-historic finds invite, and returning to whence we came by carriage through the heart of the country, *viâ* Pedena, Pisino, Corridico, and Pinguente.

Leaving Trieste, we steam across the Bay of Muggia, where the new Port of the great Emporium should have been; the old Muglia, Mugila, Mugla, or Monteamulio, rich in antique remains where Mgr. Tomasini, Bishop of Cittanuova (nat. 1595, ob. 1654), and Petroni place one of the *tria Oppida*, Mutila, Faveria and Nesactium, destroyed by the Romans (Livy, *lib. LI, passim*). We then open a sister form, the Bay of Capodistria; the classical Egida, afterwards Capraria and Justinopolis; once

the head-quarters, as its name shows, of Veneto-Istrian jurisdiction ; then a favourite garrison of the French invader, who by a fine causeway converted it from an island to a headland ; and now a kind of Triestine suburb, well known for its ergastolo or reformatory prison. Artistically speaking it was a mistake—*valdè deflendus*—to exchange the picturesque ruin on the Castle-Mound for the huge square yellow pile, which catching the eye from every approach, forms the marking feature of the venerable miniature city.

Thence the course lies past Isola of old Halicetus, the lump of limestone in a region of sandstone, to the headland of Pirano, which much resembles that of Seráfend or Sarepta, although introduced into the Argo of the Venetian Pietro Contarini.

Et Muglam, et Machium, quin Callignæca Pyrhenum, it is comparatively modern, and the jibe "Piranese pirati,"* excites great indignation. The approach is charming from the south and west. The quaint homes of the old town hug the tongue-tip and the western strand ; the large new buildings, tinted in "blonde's colours," salmon and tender-green, affect the tongue-root. St. George, with huge belfry and detached baptistery, resting like S. Francesco d'Assisi, upon tall arched buttresses, caps the bluff cliff east of the point, and the well-wooded shoulders of the mainland, whose high, bare, and scarred sea-face looks down upon the waves, support romantic mediæval ruins, a battlemented wall, and shells of towers which suggest a stage-scene. The background is glorious ; the purple-blue edge-line of the Carso or limestone-plateau, apparently overhanging Trieste, and above it, in the far background, the "King Mountain," more familiarly called Na-nos, or "the Nose," with its aquiline bridge bearing in winter sparkling snows.

We now cross the mouth of the third great bight, known near the town as the Rada di Pirano ; to the east is the Porto Rose, a corruption of Porto Glorioso ; and inland or southwards, as La Dragogogna, more commonly La Dragogna. This, the Italianized incremental of Draga, a valley or seabight, is believed to be, like Largone, a corruption of "Argaion," the Thracian name of the indentation, from the number of white (argos) streams that feed it. We should be grateful to the Slavs, who by slight changes so as to make them significant in their own tongues—the Italians call it *bisticcio* or punning—have embalmed so many classical names instead of barbarizing them like the Germans.

The north-western shoulder of the Istrian triangle is called

* They need hardly be ashamed of this ancient and honourable calling ; and perhaps jealousy gave the name. In Paolo Ramusio (de pell. constant.), we read "Histriani pirati," and indeed all this coast has been as famous for sea-thieves as that of Western India.

Point Salvore, and here the redoubtable Bora or Nor-Nor-Easter is first felt by ships coming from the southern Adriatic. The term is popularly explained as denoting the escape of a king (Salvo Rè), Otho IV, son of Frederick Barbarossa, who in A.D. 1179, fought the Venetians in Porto Rose. The word, however, is bastard Latin, Salburium, from sal; Salbera being still used by the Venetians. Two "old men" of whitewashed stone show the deep-water channel between them. On the west of the baylet are the ruins of a square Venetian tower, and a deep moat upon the rising ground, suggests that it had once been an entrenched camp. Opposite lies the dwarf mole, whence a newly-made ramp leads to the church. This ledge is a thick stratum of *débris* underlying the grass; a stick can hardly scratch it without turning up bones, fragments of pottery, especially clay spindle-whorls, bits of glass and coins, mostly of the lower Roman Empire and of the Venetian Republic. The church of S. Giovanni, which existed in Otho's days, was dowered with many indulgences by Pope Alexander III, as the first two lines of its inscription tell us:

"Heus, populi, celebrate locum, quem tertius olim
Pastor Alexander donis celestibus auxit etc., etc."

It was restored in 1826, at which time, probably its celebrated battle-picture, by Tintoretto, found its way to Vienna. The comfortable parsonage shows signs of agriculture, apiculture, and sericulture, but the wintry blasts are a grievance. The south-westernmost point dons the usual maritime tricolor, the *terra rossa* (red soil), veiled in spring by smooth turf, the sun-bleached slabs of limestone, and the brown-black edging where the sulphates of the sea water tarnish the component oxide of iron. Here are the lighthouse (Fresnel system) and steam-horn, the former built in 1817, and the latter wanting more power to its voice.

Beyond the Lighthouse, we turn due south, along a coast here almost clear of islands. The first object of interest is the drowned city of Siparia, whose site is now denoted by the Sicche (shoals) di Sipar. It was destroyed probably by the gradual submergence of the coast levels, about A.D. 740, when Arupinum, the island bearing Old Rovigno, disappeared. In 1770, when, according to the Abbé Laugier, a dangerously low ebb-tide on this coast threatened Venice with a flow in proportion (*una fiera marea*), the ruins, covering some two miles, showed their mosaic floors, and well-built walls pierced with doors and windows.

The land here belongs to Dr. F. Venier of Pirano; and the Government Engineer, Sig. Righetti, was kind enough to act as guide when we visited it (15th October, 1876), in company with

Baron Pino di Friedenthal, Statthalter of Trieste. At the Punta Catoro, the southern spit of land projecting westward, with a neck only twenty feet broad, we inspected the Roman villa uncovered in 1875; it might have been a balneum, only there were no water tubs. We then rowed to the bottom of the bight past the shell of the three-storied Venetian building called the Castello di Sipar, and landed on the slippery rocks of Zambrattia, two fisher-houses and a chapel belonging to the Venetian Counts Rotta. A long "leg," up a rough limestone lane, to the manor-house "Roumania," beautified by some fine old almond-trees; and a second leg to the south, up a broken avenue, placed us upon the shallow dome of bush-clad hills, where stands the Castellier di Roumania. The position is north (mag.), with a little easting, from Umago, and viewed from the sea abreast, it appears a second distance of rounded hill, feathered at the horizon-line, with filmy trees. Here the land, being calcareous, well preserves the shape of the pre-historic rampart, a double concentric circle, the interior diameter measuring two hundred and twenty feet (English), with a circumference of seven hundred and eighty five; the thickness of the inner vallum is twenty-two feet and a-half; and the moat, which is distinctly traceable, between twenty and twenty-five feet. It must be very old; the "black malm" (*terriccio nero*), which characterises such places;* and the *cotti* (potsherds) have been buried by the decay of the vegetation, grass, oak-shrub, and the Spina Marrucca† (*Paliurus aculeatus*).

The Lloyd's steamer stops, though not long enough to land, at Umago and Cittanova. They are the normal second-class ports of this coast, built on rocky spits, almost sea-girt, and defended by walls, which in classical and mediæval days had a sacrosanct character, being annually lustrated and placed under the protection of the god, and their successors the saints. These "honours of the city" are still garnished with bastions or with round towers, and pierced with what the Arabs call a *Bab-el-*

* First paper, pp. 15 and 39.

† In my first paper (p. 27) misprinted Spina Morocco; in Slav, Draca or Diraka, and in German Judendorn. This Rhamnus has long ago effected a lodgement on either side of the Adriatic, and many a place in Italy is called "The Marrucato." The bright yellow blossoms and the delicate foliage conceal formidable thorns shaped like partridge-spurs; in winter, when their fierceness is not mitigated by the leafery, they are true "wait-a-bits." According to the learned Dennis ("Cities and Cemeteries of Etruria," vol. ii, p. 251, a book whose reappearance in a second edition the world will welcome), it is probably referred to by Polybius (ii, 28), when describing the battle near Rusellæ. The Romans, he tells us, were obliged to strip lest their clothing should prevent their passing through the thickets. Throughout Istria I have found it as troublesome as in Syria; the appearance of the thorn, however, is pretty and picturesque.

Barr (land-gate) and a *Bab-el-Bahr* (water-gate.) The body of the place consists of a huge church, which could lodge half the population, of a belfry, often detached, whose bells were to the citizen what the *tuba* was to the soldier; of a small bilious-yellow masonry box labelled *Sanità* (health office); of a dwarf mole, locally called *La Porporella*, projecting from a neat quay of cut stone; of a marina or old town, a dull mass of grey-white houses with dingy tile roofs; and of a few big bran-new tenements on the claret-case model, showing the "new town," which belongs to this our age of great cities. *Cittanova*, besides its pier, owns a modern promenade with infant trees, apparently never visited by a promenader; the lands are rich, especially those belonging to the Counts *Righi*; yet the saying is, "*Cittanova, chi porta trova*," you find only what you carry, in the way of food. Of old *Amonia*, where Bishop *Tomasini*, whilome *Eminensis*, would place, despite *Pliny* and *Ptolemy*, debated *Nesactium*, its position promises better things. It stands at the northern jaw of the *Porto Quietto*, the gape of the valley of the same name, the largest and most important of the four great quaquaversal features which drain the peninsula; and here, if anywhere, is the stream which the Captain commanding the First *Periplus* of the *Orbis Veteribus Notus*, mistook for a branch of the *Ister*.

Here, about the *Val* and *Porto Quietto*, *Istria* looks her best. The regular slope from east to west, shows,

"A ripple of land, such little hills the sky
Can stoop to tenderly, and the wheat fields climb."

The rounded outlines are clothed with vivid green during spring and early summer, and the slopes are studded with vineyards and oliveyards; the clumps and scrub patches, mostly of oak, *ilex*, and thorns, and dotted with whitewashed villages. The gradual rise, which resembles a "rake" or stage slope, sets off the mountain back-ground of Lower *Krain*; we shall see *Nanos* of the snowy nose almost as far south as *Parenzo*; then *Monte Maggiore* appears in ermine to the south-east, and northwards tower the glorious peaks and pinnacles of the eastern or *Julian Alps* fronting *Trieste*: steadfast forms played over by the changing suns and clouds.

The principal settlements are *Buje* to the north, and *Castellier*, with its towering campanile, to the south of the *Val Quietto*. The former, connected by diligence with *Trieste*, from its position at the edge of a commanding height, is popularly known as *La Spia* (*Specula Vedetta*), or the look-out, and it was one of the nine *Istrian* bishoprics, under the title *Evelensis*. *Mgr. Tomasini* (p. 294) thus accounts for its Slav name. When the people of a certain "gradina" near the *Val Quietto* were flying

from their enemies, they rested on this hill, and one of them said, *Tote boglie state*, "here better we stay." Hence Boglie, Buglie and Buje, a derivation not faultless, but at any rate better than that proposed by Giovanni Battista Bivago—Bugia in Africa.

The next halt is at Parenzo, fifteen years ago a "deserted town," now the seat of the Istrian Diet. Its "*Basilica Eufrasiana*" or cathedral, which in ecclesiological interest "perhaps yields only to Rome and Ravenna," has been copiously described by a host of writers, amongst ours by Neale and Freeman. Before the date of the historian's visit (1875), the seaboard of Istria, like that of Dalmatia, was almost a *terra incognita* to Great Britons; the war of 1876 has now made it a favourite trip. The new town stands at the root of the spear-headed rock-tongue that projects boldly to the W.N.W. It is of unusual size and importance; and it is the seat of the Istrian Diet, and the centre of economic energy. An Oenological Department has lately been established under two officials, paid partly by imperial, and partly by provincial funds.

About Parenzo and Rovigno, the grape is mostly of one kind; in other parts of the peninsula, the peasant will plant red and white in a single field. The phylloxera has affected many vineyards near Rovigno, and the unprogressive people, who will not believe in the sulphur-cure, have uprooted their infected vines like the Madeirans during the oidium attack of 1865. On the Isola S. Andrea, further south, the French plant was introduced, but it did not prosper. As a rule, the small proprietor is utterly ignorant of viticulture; he looks only to quantity, not quality; he mixes various sorts, he uses the unripe as well as the rotten, he neglects his produce during the delicate process of fermentation, and he is too careless to rack it off the lees. Hence the yield may be good vinegar, but it is execrable wine. Many of the wealthier landowners have turned their attention to improvements, and the result is a sound and wholesome article. In the Zaole Valley, an hour's walk from Trieste, a Swiss proprietor, M. Collioud, who not only grows his grapes, but also buys them from the neighbouring cultivators, can command for his red wine a florin and a half (three francs) per bottle, and for an arna, which yields about eighty bottles, we pay thirty florins or three pounds. It is clear and palatable, but it has not the *petit goût rosé* of the French *vin ordinaire*, which is remarked by every traveller from Italy, when he tastes it at Modane. My conviction is, that first-rate light wines are not to be made south of Germany and France; where the suns scorch, and the rains are rare, the inevitable result is to develop alcohol.

Opposite Parenzo, where the seaboard-profile breaks into

lumpy hillocks, contrasting with the long sweeping curves and lines further north, begins the false-coast of islets, reefs and crags, which fringes the peninsula to its southern apex. As is shown by the ossiferous breccias, which are found even upon the smaller features, they were once part of the mainland, which still sinks in the Istrian and Dalmatian shores, whilst Italy rises, as is proved by the Adriatic ports, Ravenna, Venice, and Rimini.

The general aspect is a shallow dome, with a base of white cretaceous lime, capped by green turf, bush and trees; almost every one has its own plants, as though it were a separate continent, and all are valuable as breakwaters, forming the safe and commodious roads of Parenzo, Rovigno, and Fasana, with northern and southern entrances. At least three have been inhabited in pre-historic days, one, Scoglio Marafor (= Martis Forum) opposite Parenzo, retains its classical name, and many of the others show villages or convents, churches or chapels, the latter in preservation, or in ruin retaining only the cypresses.

With the islands begins a melancholy and almost deserted tract which stretches to near Pola. Much of the land is uncultivated, showing bush and scrub scantily clothing the grey white rock and red soil, which the three rainless months of summer bake to *terra cotta*; here water often costs as much as wine. The necessary, supplied only by the winter showers, is allowed to form perennial ponds and swamps (*lame lagi* and *paludi*) that poison the air; hence even in the Roman days votive tablets were inscribed PRO FEBRIBVS, against tertians. The pools cannot be drained, because wanted for watering cattle, and the province has not yet attempted to grow eucalyptus. Since pauper huts instead of handsome villas are remarked upon the best "stanzie" (estates),* and "La Torre" has been allowed to fall in ruins, no one sleeps a-field. At 6-7 A.M. you see the labourers with their carts and beasts leaving the towns, in which fear of fever compels them to night. We may say of this land as of the Campagna di Roma,

"Lontan da Città
Lontan da Sanità."

Passing the Canale di Leme (Culleus Lemenis), a sea-arm seven miles deep, we touch at Rovigno, which, after Trieste, is the largest and most populous of Istrian towns. It stands upon a tall rocky headland, trending as usual to the N.N.W.; and it begins conspicuously with its pre-historic modern Duomo, whose prodigious attached belfry has won many a wager from priests proud of and ready to back their own Campanili. The

* First paper, p. 24.

northern or back-bay (Porto val di Bora) is dangerous; not so the southern, formed by the Isola di S. Caterina; this sea-holm which, from above, appears three-lobed, and on paper a lance head pointing landwards, bears an old steeple and some two hundred and eighty species of plants, including the asphodel and the *Avena hirsuta*. The old town, lately a fishing village, with streets and alleys, closes and wynds, high and narrow, stepped and foul; with open drains and slimy green tanks, has half a dozen churches and chapels in as many piazzette; a large monastery, with about a dozen Minori Osservanti, and a big white penitentiary. The new town at the Riva or marina shows a chief piazza, with cafés and telegraph office; a neat quay, pierlet and Sanità, and, to the extreme south, a barrack-like and bran-new tobacco-manufactory, employing some five hundred hands. The railway station is in Back Bay, as usual here, so far from the centre that the unregulated carriage-hire will cost more than the fare. The pretence is to leave room for the towns to grow; the real object is that the line, laid out by Imperial engineers, should serve chiefly, if not solely, for Imperial purposes. Let us hope that the effect will be that proverbially ascribed to faithfully studying the ingenious arts.

There is indeed room for improvement. The Rovignese, numbering some eleven thousand, are the most turbulent and troublesome of the Italo-Istrians, even the women being fond of using the knife.

They speak a dialect of their own, which Dante terms *barbaro incongruo e crudele*. They are of peculiar type, dark and red-cheeked; their unfriends derive them from the Roman cohort, which was doomed, after the Crucifixion, to wander Cain-like over earth, till Arupinum gave a shelter. Hence are explained such street names as Gerusalemme, Betlehemme, and Calvario—which, by-the-by, suggest the ecclesiastic, rather than the anti-ecclesiastic tendency.

Their pride has lately had a queer fall: they applied for a bishop to the Government, and the latter supplied them with a "Boja;" hence the hangman is now called, in cruel waggery, the "Vescovo di Rovigno" (Episcopus Arupini).

The environs of the unpeaceful city are not without pre-historic interest. On April 30th, 1874, guided by one Pietro Genovese, a treasure-seeker, who made no secret of his craft, I accompanied MM. Tommasini and Marchesetti to inspect a sepulchre lately opened near the Canale di Leme. Twenty minutes' walk past Back Bay, led us to the Lago di Ran (frog-lake), a foul tank which spreads wide after rain, and which contracts in the "dries" with copious malaria. To the north of it

rises Monte Ricco*, where there are old *latomizæ* of good stone facing west, and where a Roman cemetery has supplied lachrymatories and sarcophagi. About thirty minutes' walk north-east of the Frog Lake, and bearing three hundred and forty-five degrees (Mag.) from Orsera, the tall town on the northern jaw of the Culleus Limenis is Monte Longo, where the usual limestones, nummulitic and hippuritic, become distinctly dolomitic. Descending by a ladder a rude shaft twenty-nine feet deep, we found a cavern-doorway nine feet high by four feet wide, with signs of a door, square bevel-holes in the rock sides for bars, and two uninscribed cippi at the threshold-flanks. A tunnel, twenty-four feet long, and very low, till lately cleared by the "Tesoriero," led to a vaulted circular room, whose ceiling still bore marks of the small pick, like the caves of the kings near Jerusalem; an upper spiracle admitted the air; one of the shallow lateral bays was marked with a cross, and a hollow sound suggested that grave vaults might be below. A single rough cippus stood inside. The yield had been sepulchral lamps, inscribed with the maker's name, or adorned with the dolphin, and two spindle-whorls of clay, which the fishing population unanimously declared to be net-weights. The general aspect was that of the Etruscan *Sala*, in which the annual Silicernium (death-feast) was eaten, and the learned Prof. Carlo di Courbi, has found in the Istrian peninsula other traces of the mysterious Rasne or Rasenna.

Allow me to offer a few words upon the Tesoriero or treasure-hunter of Istria. Although by no means ashamed to own that he has tried his luck—and failed—he is beginning to suffer from the jibes of men, and thus he will presently decline and die out. As in Syria and Egypt, the Maghrabi (north-west African) is the successful magician, so here the "Grego" is the adept: there are everywhere legends of Greeks landing by night, marching to the local ruin: consulting a plan in writing on parchment, and disappearing with their booty. Doubtless during the Byzantine occupation, and during the general stampede which followed the fall of Constantinople (A.D. 1453), many Hellenes fled to the Adriatic shores—hence possibly the tradition. Like the Eastern alchemist, the gold-hunter demands from his dupe fat capons and turkeys, barrels of wine, and perhaps the favours of some fair member of the family. "Il Diavolo di Pedena," who is still quoted, used to appear in fiendish form, and, with the most terrible of voices, assure his victim that the profits would be cent. per one (if largesse): hence the "devil" was imprisoned, not for "unlawfully using certain subtle crafts, devices, &c.," but for *truffa* (raising money on false pretences), and his employer

* In the Austrian Government maps, Monte Bisco, probably a misprint.

bore through life the title of *Cento per uno*. Rhabdomancy is also practised, but the magic "Baguette" (*bacchetto magico*), hazel-rod, is thrown, I am told, upon the ground, instead of being held by the forked end as in northern Europe.

Beyond Rovigno, the Monte Aureo (Punta di Monte Auro) has been identified with Mons. Taurus, and the Isola di S. Andrea, with its castelli and its old convent, now manufactures hydraulic lime.

A little south is the rock of S. Giovanni, in Pelago, a two-lobed form, over whose central depression the wrecked ship of a pious skipper was miraculously carried into smooth water; hence the chapel dedicated to the Evangelist. Point Barbariga, of old Cissana, shows ruins identified with the old Thracian city Cissa; a purple manufacture (Baphium) is noted in the "Notitia utriusque Imperii." The maritime lands are still barren and sun-browned. They improve about Dignano (Adinianum or Atinianum), and yet there is hardly a tree between that village and the shore. Presently we shall enter the regions of evergreens, the ilex and terebinth, the cistus (three species), the arbutus and erica (arborea); the phillyrea (latifolia); the myrtle and the oleander, the wild caper being the most common of the dozen varieties. Here the people, as has been said, are Morlaks; they are distinguished like the Cici by their long Gáce (*braghe* or tights) of white woollen stuff, which they appear never to change. Gareis says of them, "Der Slave hier ist unwissend, aber gläubisch (superstitious), misstrauisch, und besitzt eine ziemliche Portion von Faulheit."

We leave to starboard the Brioni Islands (Insulæ Pullariæ, Pliny iii, 30), whose two main features, the Scogli Grande and Minore, contain more than one castelli (Kandler); an ossiferous breccia has lately been found about four hundred yards east of the new Pharos at Point Peneda. We pass between the little Prellarian archipelago and the mainland by the Canale di Fasana, which, it is said, would have formed a far better harbour for ironclads, than Pola, haunted by the Biscia or Teredo.

As we approach this new Portsmouth, which owns its existence as "principal station of the I. R. Marine" (1853), to the unfortunate "Archduke Max," we remark that Strabo (V. 1, § 9) is still correct when he asserts "Pola is situated in a gulf forming a kind of port, and containing some small islands (not the Brioni of our translations), fruitful, and with good harbours." Passing fortified Punta Cristo, and within it Sanci, we find a host of quasi-modern works on the northern jaw crossing fire with the Brioni batteries, and with the defences of the southern Point "Compare." And now, as Berlinger says—

"Pola poi s'appruova
 Pesta da' Colchi privi d'ogni Speme
 Prender Medea, che da lor non si truova :
 Oh quanto il nome suo a lei conviene !
 Che appresso a lor 'Città d'esuli' importa
 E il nome suo vetusto ancor ritiene."

On such a day as this, Sir Humphry Davy thought the harbour "one of the most glorious visions in the world;" it is equally admired by Turnbull in 1840; and Neale found the entering a "moment never-to-be-forgotten." But since those days it has greatly changed by the growth of a new Pola, numbering some twelve thousand inhabitants, and almost equalling that of the Augustan age. As we steam past the Battery Island, we remark that the *Scoglio (degli) Olivi* (map delle olive or oliveninsel), *alias* S. Floriano, which anciently supported the mausoleum of Rasperaganus, king of the Sarmatian Rhoxolani (A.D. 120) and where, a score of years ago, goats browsed, now boasts of the most modern appliances in slips and balance-dock. The marking features are the citadel, the Roman capitol or hauteville, which presided over the other six hills, and below it the Franciscan convent (built A.D. 1285) now a military magazine; while ranged along the shoreline are the columned Palazzo Stabile, or "Festungs-Commando-gebäude;" the cathedral, "of marvellous interest," with the several riding-school windows; the large new barracks opened in 1875, the Rena or amphitheatre which, fronted by houses which did not exist in Davy's day, has now lost all its grand isolation, and the little railway station in the valley of S. Pietro, vulgarly Valle Lunga.

Several antiquarian discoveries have lately been made at Pola, and the finds have been deposited in the local museum, the Temple of Rome and Augustus, facing the Piazza, which was once the Forum. And there are improvements since I visited the Arsenal in 1873. The "Coliseum," whence Mr. Neale "turned sorrowfully away after thinking of the Christian martyrs," has been defended (1875) by iron railings seawards, and a solid wall inland. The municipality has also enclosed the funereal gateway of the Sergii, or Minerva-gate, which opened upon the Via Flavia, the latter once a line of sepulchres like the Appian Road; its modern name is Porta Aurata or Aurea, and vulgarly "Porta Rata." But the Roman single arch-gate to the East, opening on the military road to Albona, and now bridging the citadel-moat, is still, despite the complaints of Gareis (p. 72) and others, the common cess of the neighbourhood; in this matter the Slavs of Istria are incorrigible. At last (October, 1876) the "Maximilian's Monument" has been finished, with the legend "Von der Kriegsmarine in dankbarei

Erinnerung;" but it is hardly worthy of the gallant Austrian navy, or of the Prince which raised it to its present rank. And, what concerns the traveller far more, the two inns have been brushed up; and they are no longer "filthy pot-houses;" where the people are civil, but charge exorbitantly.

South of Pola, the shore is subtended by a line of lumpy hills, green and bush-grown, to the north and southwards of naked limestone. From the offing we see over the nearest distance the bare head of Monte Goly (Monte Calvo or Bald mountain) and the dark flank of Punta Negra, while the whole is crowned by the wall, jagged-edged and crateriform, of Monte Maggiore, capping an elevated plain. We pass Medolino, the townlet S.S.E. of Pola and in the Agro Polense, identified by Coppo and most antiquaries with the *Mutita deteta* by the Romans. The fine quarries are reached by a good highway from Pola, a restoration of Vespasian's Via Flavia; and near the modern settlement is rising ground about the old castle, where the old Thracian city probably stood. We steam outside the once dangerous lump of limestone called the Scoglio Porer, with its lighthouse and buoys distinguishing the channel from the *Secca Pericolosa*. Thence the course doubles the southern apex of Istria, the low dome "Punta di Promontore" (Polaticum Promontorium); in a Venetian map of 1572, it is called Punta di Compare, the former term being assigned to a north-eastern headland. Crossing the Golfo di Medolino, whence Pola lies completely open to a land attack, we pass the Punta Merlera (Point Scallop), and the various projections between it and the Arsa mouth, known as Le Merlere; it is a good description of these hogsbacks with black-green vegetation based upon ruddy calcareous soil, with chalky-white snouts, gnawed, burnt and blackened by the ever restless Quarnero.

Our course now shifts to the N.E. We shall presently return to the fjords known as the Valle di Bado and the Canale del Arsa, where, as has been said, Augustan Istria ends and Liburnia begins. We sight the lone tower of S. Giovanni in Bosca (S. Ivanaz), over the gloomy Punta Negra, the *Pax tecum* of some maps. This, the last buttress of the Caldera-Sissol range, has been provided with a small lighthouse. The next feature is the little port of Rubaz, to which we shall return; it is separated by a rounded *massif* Monte Usir, from the Fjord of Fianona. The latter is a long inlet, ending seawards in a "swatch," or long narrow gorge, which suggests the action of an ancient river.

At the southern end of the now shrunken Lake Apich, there was till lately a "Katabathron," like that of Aphalons, an Argostoli sufficiently strong to work a mill, but the mouth filled up, and the building is in ruins. Since then we have, or

rather we had, a lake with two outlets, the submarine and the subaërial, the latter being the important and well-defined Valarsa.

At the head of this fjord stands the grim townlet of Fianona, the Slav "Plomin," looking like the nest of pirates and smugglers that it was, and contrasting strongly with the comparatively open settlements, and their riant surroundings. It clings to the southern flank of Monte Zuccherò, Sissol, or Mala Uzka (2,600 feet), a mountain of highly-contorted outlines, which, after a slight depression connects northwards with Monte Maggiore. Upon this block, near the chapel of Santa Barbara, is the traditional site of an ancient castle called Lisborna or Lesborna (Liburnia?)

Off Fianona we enter the narrow Canale di Farasina, which parts Eastern Istria from the north-western end of bleak and barren Cherso Island, whose snows sometimes, as in Iceland, descend to the sea. Here we open the glorious Gulf of Fiume, no mean rival, especially when both wear their winter suits, to the Bay of Naples. We steam along the Liburnian shore, under the shadow of Monte Maggiore, the Saint Angelo of our Adriatic Parthenope, which adds grandeur to the picturesqueness of the scene. It is this culminating point of Istria (4,400 feet), the Mons Major of the Romans; the Monte Caldera, Caldier, Caldeera, Caldaro, or Caldar of the Italo-Istrians, and the Vela Uzka of the Slavs; some derive the latter name from the village to the west; others translate it the "big narrow," from the shape of the culminating spine, and opposed to the "little narrow" (Mala Uzka) Sissol. Very rich and luxuriant are the eastern slopes and fort-hills of this monarch of Istrian mountains; the amenity of the climate and the extreme beauty of the vegetation made this section of the Liburnian coast a favourite with the conquerors of the world.

Still hugging the shore, whose tall limestone walls are pierced with many a cave bored by the blue-rocks, we pass Bersetz town, remarking its fine bathing sands, where boats ride at anchor through the winter. We admire the eccentric cities of the high road to Fiume, whose white ribbon in long line stripes the dark green, without the slightest regard for levels. Beyond the tall town of Moschienizza opens its draga which, under the name Val di Sàra, runs up to the southern base of Mons Major. Here we expect to see the water power made useful, and are told that "it is proposed." The mouth divides the Commune from that of Lovrane (Lauretum) where the evergreen which named it, has apparently yielded the palm to the edible chesnut: this *Marrone* is looked at in a variety of ways. Baytree town, famed for its battle in A.D. 695, being upon the sea-board, has been

defended from pirates by walls and two fortlets; now we remark only its mole and Mandracchio (inner port). From this point we strike nearly due east, and with a glance at the high-placed church of Saint Peter; at the beautiful grounds of the Abbazia Villa; at tall Castura, at low-lying Voleska and its portlet Priluka, where the tunny enters the chamber of death, we make old Tersatica Fiume.

We have then, in little more than twenty-four hours, passed round the three sides of the Istrian peninsula. The Lloyd's steamers stop at Pola between five and ten P.M., and thus they double the southern point during the dark. By taking the carriage-road to Trieste, in an eight hours' drive, you may encircle Adriatic Istria.

Istria is small in stature, great in fame. Its climatal and jetturic accidents have made it, like Syria and Palestine, a manner of earth's epitome. The mountainous region bounding the east suffers from the cold of England; the lowlands to the south and west enjoy the tepid warmth of Italy; the aloe flourishes at Rovigno, and the bush feathers Monte Maggiore, distant only thirty direct miles. In Roman days the peninsula was a meeting-place of nations, being traversed by two great highways; the great south-eastern connecting York and Aquileja with Constantinople and the Levant; and the eastern line between Ancona, Pola, the rival of Ravenna, Zara and the Danube to Pannonia. Hence it was the chosen abode of Emperors, like Vespasian, and of patrician families like the Crassi (Licinii) the Sergii (Castro Polæ), and a host of *clarissimi viri* and of *clarissimæ feminae*, whose villas not only lined the shore, but extended to the centre. Hence, too, the attention paid to it by the poets, the geographers and the historians of antiquity. Of late years it has been unduly neglected.

SECTION II.

Rubaz, the *marina* or port of Albona, is a settlement with half-a-dozen houses, including a little inn; it has a stone-reveted quay, a dwarf mole of good masonry, and two stepped landing-places. A life-boat, the "Felis" has been presented to it by a patriotic citizen, and the civil "deputate" (health-officer) Sig. Lorenzo Dominié, by his friends called the Admiral, takes a pleasure in showing us everything. The harbour is connected, by a good *carrozzabile* made by the commune, with its town Albona, the latter looking from afar like a huge mediæval castle eyried on a mountain-top, with the tall belfry acting land-mark. The road runs up the left side of a rugged ravine, called in the town part the Valle di Ripenda, from the district (comune)

which subtends the seaboard; about half way up, a bridge spanning a northern branch influent which drains the upper bed, and which rolls a cataract after rains, separates Ripenda from Albona; and here the main gorge becomes the Valle d'Albona.

The steep and stony flanks are seamed with paths; and in places the Fiumara works mills under difficulties; during summer the bed is bone-dry, and in winter it pours a furious flood after heavy rains.

The Ripenda-Albona ravine is sunk in the normal series of Istrian limestones (eocene nummulitic), and forcibly reminds the traveller of similar features in the Anti-Libanus. Below the nummulites, hippurites, and radiolites (Rudisten-Kalk), lies on both sides of the valley, with a sharp dip, a band of limestone full of the bivalve (*perna*), which polishes like marble; the thickness varies from eighteen inches to two feet. The eocenic sandstone appears on either side. About half way up (five hundred feet), we find on the left flank a quarry of sandy marl (*grès marnées*), which strikes to the N.N.W.; burnt and mixed with sand, it forms, like the Santorin earth, a fine hydraulic cement. Formerly it was fired on the spot, but the forno did not pay, and now it is shipped raw to the Rovigno works.

Reaching the Col, we bend from north-west to south-west, and stand upon the Altipiano (plateau) of Albona, a swelling ridge of extreme fertility, broken westward by two great gorges; the first is the Val di Carpano, a copy of the Ripenda-Albona ravine, draining the prison, and the second is the Valarsa (Val d' Arsa), in former times the subaërial drain of the Lacus Arsiaë, the now stagnant Cepich, which breeds fatal fevers. The inland view also has its attractions. Almost due north stands Monte Maggiore, simulating a cold Vesuvius; like the Julian Alps seen from Trieste, it is a local barometer, whose cap of clouds promises rain. A little further east rise the belfries of Pedena and Galignana, thrown in relief by the pure blue sky. The narrow plateau, of red calcareous soil, is covered with vineyards, and three villas now represent the three towers that defended the northern approach. Along the eastern side of the rock-mound, here bluff, there sloping, upon which Albona stands, we easily trace the now grassy ramp of Roman days, and we see the classical arch*, at present blocked up, which pierced the tall ivy-clad walls of the oldest fortress.

Following the modern communal road, which communicates with Fiume and Pisino, as well as with Rabaz, we pass on the right the type of an Istrian chapel, della Madonna, whose long

* Near the north eastern entrance, Porta S. Biagio.

tiled porch, supported by thin monolithic colonnettes, received under its slabs the dead, before the new cemetery was laid out south of the town. High above us to the left are the old palaces which form the *enceinte* of the ex-republican capital; three square bastions have also been converted into dwelling-houses, and a long curtain of tall tenements, with fourteen windows, still belongs to the Depanghes, Manzini and Negri families. The Borgo or new town, whose chief square (Piazza del Borgo) contains the Loggie of Venetian days, and the modern Casino di Società, is approached by new buildings; conspicuous amongst which is that of Sig. G. de Furlane, *detto il Capetto*, with one half by no means reflecting the other.

We find rooms in the old hostelry, "Albergo al Cittadino" of Francesco Vladissovich: there is a new establishment in the upper town, but it wants the fair view of its ancient rival.

Albona, by the Greeks called Alouon, and the Slavs Labin, has been frequently described, and it has its monographer. The latter was "Bartolomeo Giorgini" of Asola, who calls himself an *Aromatario* (apothecary); domiciliated in the town; he printed his twelve chapters in 1733. He places the city in north latitude $44^{\circ} 40'$, and "grade" $37^{\circ} 30'$ (Ptolemy, east longitude 36°), in the fourteenth parallel, and at the extremity of the seventh climate, with a maximum length of day of fifteen hours twenty-four minutes. The territory measures sixteen by a maximum of ten (Italian) miles, and its circumference of seventy is bounded north by the Lago di Cesliano, and south and west by the Arsa. The founders *may have been* the Colchians, who, in B.C. 1222 (= A.M. 2731, and A.U.C. 500) "settled in Japidia, which they called Istria." But he places, without any reason, the first Albona at Starigrad ("old town"), six miles from the present site, and eight miles from the sea: the people, finding the air bad and water scarce, removed to the present hill-top. After the capture of Istria by the "Rerum domini," Albona, as is shown by frequent inscriptions, was a republic, and a municipium with the *Ædiles* and *Duumviri*, and a *Concilium Decurionale*. She is said, on very imperfect grounds, to have embraced Christianity in A.D. 65. The territory suffered severely from the Marcomanni and Quadi (A.D. 373); from the Visigoths (A.D. 380); from the Heruli (A.D. 487); from the Ostrogoths, under Theodoric the Great (A.D. 489); and from the Longobards (A.D. 526). After belonging for thirty-two years to the Empire of the East, she in common with Istria, was united by Carolus Magnus with the Western Empire (A.D. 788-909) and finally, under Frederick Barbarossa (A.D. 1172), she was transferred to the Patriarchate of Aquileja.

About the fourteenth century, the "oppidum" had been reduced

to a mere castle, about half the size of the present "Old Town." After various sufferings from the Saracens and other barbarians, it was happily united (A.D. 1420) with the then *Regina del Mare*, of which men wrote *dominium Venetorum non deficiet usque ad finem mundi*. It retained its liberties, was ruled by its Podestàs, or Rettori, and obtained for arms a cross gules on a field argent; moreover, the extent was more than doubled, thus forming a new Old Town: the *enceinte* being strengthened by a curtain and five square towers, which still remain, except that to the north-east, fallen a few years ago. In 1587-1600, the chief entrance of the new or south-western town—not to be confounded with the Borgo or suburb outside the walls—was further protected with two *propugnacula* or *baluarte*, round towers of which the Terrione is a specimen, and with a Revellino, here meaning the flanking wall: they were furnished with twelve *anea tormenta* (bronze patereros), for which Doge Marino granted one thousand gold sequins. Over the inner gate, where stands the now secularised chapel of San Fior (Bishop of Cittanova, A.D. 524), was placed the Lion of Saint Mark, with a movable ball of stone in mouth. On the night of January 19th, 1599, Albona was attacked by seven hundred to a thousand Uzkoks or pirates of Signa, sent by the Archduke Ferdinand of Gratz to worry Venice by harrying Istria; they were beaten off with a loss of seven, and they seized the dependency of Fianuma, then unfortified.

I must refer readers to Giorgini's volume for the discovery, about A.D. 1817, at a place called Calich (one MS. gives Calick), of the "giant of Albona," whose bones where three times the size of the biggest man; and concerning the origin and the armorial bearings of the families Battiala and Negri, Luciani and Scampicchio, Coppe and Frankovich, Ferri, Dragogna, Munzini, Manzoni, and Tagliapietra.

The Museo Scampicchio had acquired since my last visit, three fragments of stone implements, two found at Pisino, and one in diggings south of Albona, near the smaller Cistern. These hardly deserve illustration, but I forward a tracing of a bronze (copper?) dagger blade, it was dug up by the treasure-seeking family, *Cento per uno*, a little north of the Pervodraze farm-house, about fifteen minutes' walk to the south-west of Cunzi. The sides, which converge with the slightest catenary curve, are sharp, and the raised surface, with a margin of one-eighth to a quarter of an inch, want the ornamental lines and points which distinguish the most finished weapons. The "part wanting" has been rubbed off probably by the rude trials of the treasure-seeker, and it is suspected that the handle was thrown away.

My first step was to the Castelliere di Cunzi, the type of its kind, where one seems to stand in the presence of proto-historic man. Again we enjoyed the view from the Krizni-berg,* or cross hill, one of many little heights which, however, was not occupied by the old race. We explained the water supply of the Istrian settlement, which stood on a limestone plateau overlying the "Tasello," like the heights south of Albona, and from the junction of these formations the element is plentifully supplied. Again I saw no trace of the dreaded vipera del Corno, the gat of the Slavs, which is described as a unicorn with a red tail. We gathered quantities of *Cotti*, pot-sherds whitened by the deposit of lime in the walls. The earthenware in the castellieri is mostly of one kind, thick, massive, and heavy. The fracture shows a dark and often an almost black core, the result of imperfect baking with thorn fire in the open air, such being the general custom of barbarians. The reddish-yellow outer coat is dotted with bright points of silex, or of limestone; these diminish in the improved forms, of which specimens were collected at Corridico; and they entirely disappear from the Roman pottery, so abundant on the Istrian seaboard. Finally, the unbroken specimens are all of the rudest shape, ignoring the wheel, and the lips and handles are equally coarse, massive and irregular.

My friend Sig. Erneste Nacinovich, of the Hospitale Santa Dominica (formerly Dubrova), who on our first visit showed us the Starigrad di Prodol, had discovered the remains of another castelliere, about a mile north-east of his father's house, at the place called in the Austrian map "Erschische" (pron. Ersiskic). The site belongs to the Comune of Fianona, the gorge of that name bearing 130° (Mag.) from, and close to, the whitewashed "Villa Erschische." His attention was aroused by the country folk bringing him two fragments of a massive human skull. Tall limestone rocks weathered to nakedness occupy the centre of the area, and the *enceinte* was apparently, according to general rule, divided into two unequal parts, by a wall of rough blocks, six still lying on the ground, and trending nearly north and south (Mag.) There are also signs of an entrance. The northern arc of the *vallum* shows two natural projections, which may have been useful as rude bastions, whilst in the southern face there are three. Excavations in the mound produced the characteristic black earth; pottery, including

* See first paper (pp. 18—20), when, however, the misprint Krini-brek occurs. My collaborator has supplied me with a plan of the *enceinte*, the work of a qualified engineer, Sig. Enrico Soutzek. I am rejoiced to say that it establishes the correctness of the rude sketch facing p. 20. This year the oak-copses will be cleared off, a septennial operation when money is not scarce, and there will be a good opportunity of taking the long-promised photograph.

several fragments with handles, bones of man, beast, and teeth of cattle, sheep or goats, swine, and apparently rabbits.

Late in August 1876, Dr. Scampicchio and I proceeded to examine the cave of Trdácina (pron. Terdazzina), the "place of great cold," on the Strada S. Giovanni (del lago), almost due south of, and almost an hour's easy walk, from Albona. Cav. Luciani has long been of opinion that these features, so abundant in the limestone formations of Istria, would yield troglodytic remains, a theory in which I had little confidence. Immediately on leaving the town, the limestone clifflet capping the sandstone shows signs of occupation; here probably was some defence for the important line leading to Porto Traghet, the Traghetto or Ferry of the Arsa. Immediately below, and to the east of the Hauteville, to the left of the road, lies La Cisterna Grande, of Roman date, solidly built of fine brick, with square pillars, vaults and rounded arches; a little further on is a second, which remains blocked up, and a third, La Cisterna Piccola, or La Zuecca, used by tanners, is under the Campo Santo in the place called Alle Fontane. Also on the left is the chapel of S. Mauro, where were found cinerary urns, and the funerary inscriptions of the Gavillius or Cavilius family, of which one is now preserved in the Loggie of Albona. Further seaward lies S. Gallo, which yielded a stone inscribed "to the Holy Nymphs," on a balneum built for the use of the Municipium; while southermost of all, lies Grasischie, a position commanding the roads to Rabaz, Portolungo and Santo Marina.

Passing to the left the chapel of Santa Maria Maddalena, belonging to the Scampicchio family, we leave on the opposite side that of S. Michele upon a height. We see near us the village Castelliere de S. Antonio di Monte on the right bank of the Albona gorge, all its antiquities having been destroyed, and far below us appears the long bare point of Portolungo, the northern jaw of the fjord immediately south of the Rabaz bight. A wall of large stones across the narrow neck, and another cistern for rain-water, suggests that this was the site of a Roman villa, a common feature on the seaboard of Albona, where the conquerors of the world, having no fear of pirates, enjoyed their bathing, and breathed air 4° (F.) warmer than the temperature of the upper elements. Before, however, proceeding to Trdácina, I will translate the last communication upon the subject of these caverns sent to me by Cav. Luciani, with my own remarks upon his long list.

Doctor Scampicchio sent on half-a-dozen labourers, and whilst they sank their shaft, we measured the cave. Its length is twenty-four mètres, by seven to eight broad, and the average height may be five. One of the Negri family had converted it

into an ice-house by paving the floor, by running across the mouth a dry-wall provided with a doorway, and by similarly protecting the smaller and deeper end. Various holes picked in the ceiling and in the sides, showed the familiar signs of the treasure-seeker. But our search was utterly unsatisfactory.

The calcareous red earth was found undisturbed; only the narrowest stratum, about a foot below the level, denoted the black mould, and it was probably due to temporary occupation by shepherds or robbers; a few mouldered bones of beasts, and fragments of old pottery, which might have been transported, formed the sole and the unsatisfactory find. We dug down to the ground rock, one mètre or so below the surface; then we gave up Trdácina as hopeless; and with it all hopes of finding troglodytic man in the Istrian peninsula.

I had always doubted, despite the robust belief of my friend Luciani, that a race of cave-dwellers would be found in this region. As a rule* the troglodyte affects climates which are either very hot and rainless, as near the Red Sea, or cold, as in the north of France. Moreover, cave-dwellers do not, even in our day, readily give up their cheap and comfortable abodes; this may be seen throughout La Beauce, and even at Saint Côme, within an hour's railway-travel from Paris. Again, the perpetual infiltration of rain, which doubtless was more abundant in the days before Istria-land was disforested, must have made them damp and malarious, in fact very uncomfortable compared with those of the chalk. The essentially temperate climate of the fair peninsula, also, would suggest subaërial habitations, and it offered peculiar facilities for building; limestones whose natural fracture saves the trouble of blasting and cutting, and abundance of wood for the rude wigwam. Finally, the large number of the pre-historic or proto-historic "Castellieri," which may amount to a score in the small territory of Albona, is adverse to the existence of a troglodytic race.

NOVEMBER 27TH, 1877.

Mr. JOHN EVANS, D.C.L., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The election of the following gentlemen as ordinary members was announced—Professor Flower, F.R.S.; Count General

* There are exceptions, for instance at Grand Canary, and other places which readily suggest themselves.

Menabrea, Italian Ambassador in London; M. Elie Reclus; Rev. Edgell Wyatt Edgell; M. G. Bertin.

The following presents to the Library were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the Berlin Anthropological Society.—*Zeitschrift für Ethnologie.* No. 4, 1877.

From the ASSOCIATION.—*Journal of the Royal Historical and Archæological Association of Ireland.* Vol. IV, No. 30.

From the SOCIETY.—*Bulletin de la Société Impériale des Naturalistes de Moscow.* No. 2, 1877.

From the INSTITUTION.—*Journal of the Royal Institution of Cornwall.* No. XIX, 1877.

From the SOCIETY.—*Journal of the Royal Geological Society of Ireland.* Vol. IV, Pt. 4.

From the Royal Academy of Vienna.—*Sitzungsberichte philos.-histor. Classe* 82. Band, Heft 3; 83. Band, Heft 1-4; *Classe. math.-naturw.* 1876, I Abtheil., Nos. 1-7; ditto II, Nos. 4-7; ditto III, Nos. 1-5.

From the INDIA OFFICE.—*Statistics, Agriculture and Commerce; Census of the Bombay Presidency*, 1872.

From the EDITOR.—*Revue Scientifique*, Nos. 20 and 21, 1877.

From the EDITOR.—*Nature* to date.

Major-General A. Lane Fox, F.R.S., exhibited various objects from Istria and Scinde.

The President read a communication from M. Lubavsky, on the Civilising results of Russian Conquests.

The following paper was then read by the Director, in the absence of the author.

NOTES ON SOCOTRA. By Captain F. M. HUNTER, R.N.

WELLSTED'S description of Socotra is very accurate as far as it goes. The appearance of the plateaux between the north and south of the island from Jebel Hagair to Ras Katâin is very peculiar. The whole surface is composed of an extraordinary soft limestone, which seems to be in slabs; a curious effect is produced by these being here and there cracked and forced up into irregular piles; in other places the surface has been worn and eaten into by rain, until it is perfectly honeycombed; some parts are free of stone, and are covered with a rich red soil; everywhere vegetation exists, and where the slabs are more

broken, it is luxurious; *metahin mithra*, a bush resembling laurel; *ameeroo*, *lakaham*, and a sort of *babool* are the chief trees and shrubs; dragon's-blood trees are numerous, as also are aloes.

On the western plateaux of Schiebaham and Doftai, down to Ras Rakoof on the range of Jebel Tsobrahi, there are numerous lumps of limestone, smooth and round, about a foot or so in diameter, the action of rain, or rather water, collecting in cavities in the topside of these, has gradually hollowed them out into large stone bowls, the edges of which are rounded off with such regularity as to suggest human agency.

The map prepared by Wellsted is not a very satisfactory guide in rambling about the island, the altitudes are not in accordance with those exhibited by an aneroid barometer, the difference being in some cases nearly 1,000 feet; again, the valleys intersecting the plateaux are not shown, and many hills of upwards of 500 feet in elevation are entirely omitted; the slopes are not graduated, and an attempt to follow the routes indicated, would occupy very much more time than an inspection of the distances as laid down would lead one to expect.

Of the portion visited, the very extensive valley between Tidhau Maala and Tidhau Mataala on the west, and the Shiebaham range on the north and west, appears eminently adapted for cultivation. The extent of this plain cannot be less than 100 square miles, and it receives the drainage of all the hills which surround it on every side. The outlet is through a narrow gorge on the north-west side, whence the flood passes into another though smaller valley containing perhaps 20 to 25 square miles of cultivatable area; thence the torrent rushes through a gorge about a quarter of a mile towards the sea, into which it pours close to Khor Ogahim. It is said this stream runs down for about a mile from the outlet in a body of water about 20 feet deep, carrying everything before it. It is augmented in the lesser valley by the drainage of all the westerly hills which skirt the valley running out to Ras Shaab. The soil of both these valleys is apparently a red loam, and even after a very dry season they are the only part of the western portion of the island where good pasturage is to be found. They are covered with a sort of stiff long grass, that grows in bunches and the whole plain or valley is sprinkled with bushes, almost all of which afford pasture for camels.

The climate during April is exceedingly warm in the plains, although the thermometer only ranged from 78 to 88 degrees at sea level. On the higher parts of the island the nights and mornings are cool and occasionally cold, and an exceedingly heavy dew begins to fall after sundown. The heat of the sun

during the day is very oppressive ; there is little or no breeze, and the rocky surface absorbs and emits great heat.

The flora is not so varied in appearance as would be supposed ; some trees and shrubs repeat themselves so frequently as to weary the eye. On the northern slopes of the hills, *metahin*, dragon's-blood trees, and a sort of *babool* are very prevalent. On the southern slopes and on the plateaux, besides the above-mentioned, *adenium obesum*, a kind of milk bush, and the shrub resembling laurel, are obtrusively apparent. On the southern side of the island, *adenium*, *obesum*, *mithra*, and a few so-called laurel shrubs are all that grow ; and the weaker bushes are bent over by the violence of the south-west Monsoon winds.

In the centre of the table-land *ameroo* and *lakahim* trees abound. It is said the dragon's-blood tree is found of two species, or, as the natives say, of two sexes ; but as there does not seem to be any such operation necessary to fecundate, as is the case with the date palm, it would be more proper to say that there are two species, one barren, and the other producing a berry from which no doubt seed is disseminated. Observing very closely, all young trees appeared to belong to the so-called female or fruitful description, and it is not until a certain age is reached that it becomes apparent into which species the tree will eventually develop. Wellsted has well described both trees, but he does not notice the last-mentioned peculiarity. The radical difference between the two species is the presence or absence of the short stumpy branches from which the umbel of spiky leaves springs, and the greater length of the latter in the fruit-bearing kind. The branches, never more than a foot long, develop and throw out fresh branches, so that a very old tree has the appearance of an umbrella or mushroom. The tree is occasionally incised, and a portion of the bark scraped off about 2 inches square. This space fills with gum in a fortnight or three weeks, which is collected in the end of April. The gum sometimes exudes of its own accord from cracks and fissures in the bark.

The *amuroo* is a coarse description of frankincense tree, it has the same curly indented leaf, but of a much larger size, the trunk is also thicker than the Luban tree, and the foliage is even more scanty ; the leaves are frequently of a brick-red colour. The bark is very thick, and is of a pinkish-brown hue where the outer green covering has peeled off ; this last is always hanging about in strips, giving the tree the appearance of being in tatters. The bark is used by the natives to make buckets for holding water ; by what process it is joined, shaped, and made water-tight, there was not time to discover. The fruit is a berry about the size of a marble, and the gum exudes freely

when the bark is incised. It has a strong aromatic smell and taste, is of a clear white transparent colour, and might no doubt be found commercially valuable were it collected and exported.

Lakahim is another tree which yields an aromatic gum. At a distance it somewhat resembles *amuroo*, except that the leaves are smaller and not curly, and the berry is different.

The aloe of Socotra needs no description. The collection of the juice is entirely in the hands of the Sultan, who assesses each landowner in a fixed quantity per annum. Great carelessness is frequently practised in expressing the juice, and many impurities are mixed with it by the Bedouins to increase the weight; but the Sultan has a novel way of punishing this attempt at fraud when discovered, by pouring the contents of the skin of impure aloes over the head of the culprit. Judging from the appearance of the hands of the persons employed in working the plant, this must have an uncomfortable effect on the skin.

The Island of Socotra is divided into lots, and there is great jealousy as to boundaries, which are carefully marked. An average assessment of about four keilas of ghee is exacted from each male adult per annum. The collection of this rent in kind is attended with so many difficulties, that perhaps one-half of the Bedouins do not pay regularly.

The herds of sheep and cattle are not nearly so numerous as might be expected from previous accounts, at least in that portion visited, but it is possible that the flocks actually observed, were not fairly representative as regards the actual numbers of sheep and cattle on the island.

The value of the ghee received by the Sultan yearly by payments in kind, is estimated at five hundred dollars; aloes bring him in two hundred and fifty dollars, and dragon's-blood eighty dollars; dues on the mother-of-pearl fishery, etc., make his total income up to about a thousand dollars per annum. The dragon's-blood trees on one tract of land are the exclusive property of the Sultan, the remainder of the trees are in the hands of the Bedouins, who lease the several tracts.

The Bedouins of the interior are divided into numerous families, but there are only a few principal tribes. Unfortunately time did not allow, or opportunity serve, for a complete investigation into the various "fakhidabs" as they are called, but one tribe who occupy the western portion of the island claim to be decendants of the Portuguese. They are called "Kisshim," and are tall, finely made, thin lipped, straight-featured, pleasant looking men. The women are very like gypsies, and are not darker than Goanese, whom they much resemble. It must be remembered that the Portuguese probably inter-married with the Arabs and aborigines, and it is hardly fair to

draw conclusions from the appearance of descendants after five or six generations, especially as there does not seem to have been any attempt to preserve purity of descent by marrying only descendants of the same stock.

The "Momi" who reside in the eastern portion of the island are said to be the result of intermarriage between the aborigines and Abyssinians. Certainly some Bedouins that were observed resembled Gallas in every way.

The "Camabar," who occupy Hajair and the higher ranges above Tamarida, are supposed to be the result of marriages between the aborigines and the Mahri Arabs. Very many of the latter take wives from among the Bedouins, the women being nothing loth to become the inmates of harems, where they can lead a life of comparative idleness and luxury, in place of wandering about in the heat of the day with the flocks, returning at night only to have to toil afresh in milking the goats and cows, churning butter, and cooking for their lazy male relatives.

The Bedouin women of Hajan, wear the usual Arab long blue chemise, confined at the waist by a belt as described by Wellsted, but those to the westward improvise a petticoat from the coarse blanket they themselves weave. On the upper part of the body a loose jumper, with short sleeves, is worn, which has a hole for the head to pass through.

The hands and feet of the women are large, the legs are very stout and thick in the ankle, even among the younger females. No extraordinary abnormal development of the posteriors was noticed, such a Wellsted describes. The women wear their hair in two long plaits, to lengthen which, frizettes of goat's hair are used, and the ends are joined together, the braids hanging down the back in a loop. The hair over the forehead is cut short, leaving a fringe about an inch long across the brow, very much like the present fashion in England. The only ornaments worn are the common Arab ear-ring and armlet. Sometimes a necklace composed of glass beads, bits of amber, agate, dragon's-blood, &c., with rupees as pendants at intervals, is hung round the neck. While herding the flocks, every woman carries in her hand a spindle, spinning as she goes along sheep and goat's hair into coarse thread, eventually to be woven into blankets with the simplest of hand looms. The very young children are carried in a blanket or cloth slung over the mother's back, while those just able to walk are hoisted on their father's or mother's shoulders, sitting three with the legs dangling in front, the balance being preserved by a firm hold of the parental head. The few children seen appeared very scrofulous.

The teeth of both sexes are kept beautifully clean by a tooth-stick of a kind of wood which tastes like licorice root.

The girls do not marry until they reach the age of seventeen or eighteen. The "malar" or dowry is usually ten dollars, and the "dafa," or preliminary present, consists of twenty goats.

The men, as already noticed, are well built. There is among the western tribes great diversity of feature, but no African taint is yet visible. It was observed that nearly all the "Kisshim" had overhanging jaws and prominent teeth, the broad shoulders, lean flanks, and stout well-formed legs, seem to bear out their claim to descent from an European stock. They are also very much taller than any of the other races on the island. The "Kisshim" were delighted to welcome a "Feringe," whom they hailed as brother, and hastened to entertain with milk and goat's flesh; an invitation to dinner was declined reluctantly on the score of want of leisure. In no instance was more clothing worn by the men than the ordinary Arab "maawiz," or kilt of American cloth; in the hand is carried a few yards of sheeting or a blanket, which is cast over the shoulders to protect them from the fierce heat of the noonday sun. Nothing is ever worn on the head. The hair in the "Kisshim" is generally straight, though sometimes wavy, but never crisp and curly as is the case with the "Momi," and some of the "Camabar."

Although the Bedouins of Socotra take advantage of the many natural caverns which are found all over the island, yet they are not always troglodites.

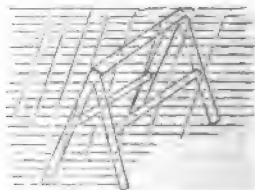
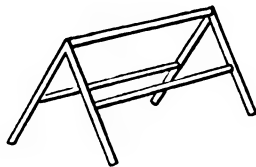
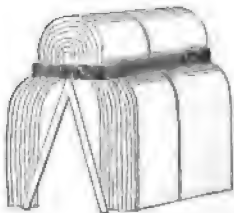
The houses, however, are of the rudest description, being built of rubble walls, with a flat roof of earth, which is supported on rafters and branches of trees. In almost every instance where a habitation is found, there is also a large circular erection of similar construction for the protection of the sheep and goats in wet weather. Each of these covered folds has also an open courtyard with high walls, topped with branches, in which the flocks are placed at night. The portion roofed in is usually nearly circular, and is perhaps 30 to 40 feet in diameter, the open court is rather larger; the human dwellings are the same shape, but only 15 to 20 feet in diameter.

The food of the Bedouins consists chiefly of milk and the flesh of goats or sheep, varied by dates, rice, and bjri when attainable. A kind of land snail, which is found at the roots of trees, is baked and eaten. There are two distinct species of these snails, each of which is of three different sizes. The smallest size, of the elongated spiral shelled species, climb trees, and branches are occasionally covered with them so as to leave hardly any space bare. This does not appear to have the immediate effect of killing the tree.

Religion seems to set slightly on the Bedouin, he only prays when he has an audience, and even in the very act of prostration he will turn round, join in the conversation, and again continue his devotions, until the requisite outward observances have been completed.

Circumcision is not universally practised, and each little community has its own place for performing the rite, as in some parts of Arabia. This ceremony seems to be the occasion of the only festival of any note amongst Bedouins, who then feast and dance. Unfortunately, no opportunity occurred of ascertaining the description of dance practised. It was observed that the mark of the cross is still used on the headstones of graves. Several rude crucifixes and upright tombstones were noticed.

The camels of the island are well worthy of mention for their agility and surefootedness, in which they rather resemble mules than the ordinary "ship of the desert." In appearance they are in no way peculiar, except perhaps that the neck is heavier than is the case with the ordinary camel of burden in Africa and Arabia. The saddle is simple, and well suited to the country. It consists of two inverted V's of wood joined at the top and middle as in the sketch; this frame only covers the hump,



not being much more than a foot long or high. Behind and over this are placed a succession of thick rugs, like blankets, of gunny, to the number of seven or eight, lying one over another backwards and forwards, for each blanket is only three-fourths of the length of the saddle. These rugs are then forced up by a rope being passed round about a foot from the top as in the sketch. Across the saddle two long mat bag panniers are slung

by two transverse sticks attached to the panniers. Each bag is capable of containing about three or four dozen claret cases, and a Socotrine camel can easily carry three or four hundred pounds weight over any ground.

Upon the range which runs along the southern coast, and about 14 or 15 miles east of Ras Kattani, there stands the ruins of a very extensive Portuguese fort. It consisted apparently of a main building with outworks, and had square towers at three of its angles. Round it are the remains of what must have been a settlement of perhaps one hundred houses, as also of a large tank, which can hold a considerable quantity of water when full. Ruins of houses are to be found at and near Ferigho at the head of the valley which runs down from Hagair Adiha to the south coast. Standing on the latter ridge, the sea is visible on both sides of the island. In the bed of the stream is a fine piece of water which has evidently been deepened and retained by artificial means. Wellsted states that similar remains exist on Jebel Rummel south-east from Tamarida.

The inscriptions mentioned by that traveller could not be discovered, but the hieroglyphics were seen and copied. They are cut on the surface of an extensive flat layer of rock (apparently limestone), which crops up about a quarter of a mile from the seashore, two miles east of Ogahim on the road to Tamarida. The surface on which the marks are cut is about 50 yards long, and 25 or 30 broad. No two figures are in line with one another, so as to give the idea of a continued sentence; they lie at all angles, some distant from the next nearest 20 or 30 feet. It must be left to others to decypher or attach a date to these hieroglyphics, as well as to discover their authors. They in no way resemble the inscription at Hisu Ghorah, which had been visited only two or three days previously, and which continues in a good state of preservation. It were perhaps frivolous to remark that the impression left on the mind after seeing the marks on the beach as Socotra, was that someone had stood with bare feet together and drawn a line round them. The figures of human feet in this position being very numerous, and constituting perhaps three-fourths of the total marks on the rock.

The route followed on the occasion of the visit to the island when the above notes were collected, can easily be traced on Wellsted's map. Landing at Tamainda, the first day's march was to Hajair Adiha, 3,200 feet above the level of the sea, on the ridge which connects the Hajair range. Thence the hills were descended to Ferigho in the valley, which Wellsted shows as lying between Killiem and Scrakou. From Ferigho, after following the valley for a few miles, the track turned off to the

westward over Kelliem down into the next valley, which was ascended a few miles; when again a turn was made to the westward over Daftai, into a sort of devil's punch-bowl. After leaving the latter, the plateau Schiebahane was ascended, and finally a halt was made for a day near the head of the pass south-west of Raggian. The height of this pass, by the way, is nearer 3,200 feet than 1,500 as shown in Wellsted's map. From hence a short trip was made across the island in a south-westerly direction, to near Ras Kattain, and again northwards across the large valley into the smaller, which finally debouches at Khor Ogahein, or as Wellsted calls it, Haggien.

A collection of a few words of the language peculiar to the island was made; but the results are so poor as to be hardly worth recording, and it must be reserved for a future occasion to investigate the interesting problem of the origin of the Socotrine dialect. It will suffice to notice one peculiarity in pronunciation which a foreigner strives in vain to overcome; many words commence with a sort of combination of s, h and l, and have a peculiar sibillant twang as if they were being spat out; thus, "Shlhang," milk, is pronounced as if spoken by a person with a hare lip, very many words seem to be uttered as if the mouth were full.

In the discussion on the above, Major-Gen. A Lane Fox, and Mr. Hyde Clarke took part.

The Director then read the following papers in the absence of the authors.

NOTES ON THE ZAPAROS. By ALFRED SIMPSON, Esq.

In consequence of the author's absence from England, the publication of this paper is postponed till the next number of the *Journal*.

On some CHARACTERISTICS of the MALAYO-POLYNESIANS. By REV. S. J. WHITMEE, F.R.G.S., C.M.Z.S.

THERE are, I believe, many indications that the brown Polynesians have descended from a higher intellectual and social level than that they at present occupy. In this paper I intend to notice a few of these, especially such as occur among the natives of Samoa.

1. The comparatively high social position occupied by

women is one of these. It is something very much above the lowest savagery, in which woman is simply the slave and tool of man. Among the black Polynesians (Negrito-Polynesians), as among other savages, her position is worse than that of the dog, whose food—the leavings of the lords of creation—she shares. But among the brown race, throughout the whole of Polynesia, woman maintains a position of importance, perhaps only a little inferior to the relative position held by our “better-halves” in our own homes.

Some time ago, I read an account of a visit made to the New Hebrides by a gentleman who was, apparently, unacquainted with the fact that women hold such different positions in the two races. In those islands, there are two or three colonies of brown Polynesians, who, although they are surrounded by the blacks, keep themselves to a great extent free from mixture with them. This gentleman visited one of the brown Polynesian colonies, and was at once struck with the strange difference between the women of the colony, and those of the other islands. This is one of the most constant distinctions between the two races.

The same rule is found to hold good on the south-eastern portion of New Guinea. On that island, where the black race is found, woman occupies a low position. On the other hand, where the brown race exists, she occupies a position nearly equal to that of man. This is likewise true of Madagascar, the Hova population of which island appears to have affinities with the brown Polynesians.

Among these Polynesians (as also among the Malagasy) women may hold the highest position, and they inherit titles just as men do. In fact, rank is more often communicated by the mother than by the father. The son of a lady of rank will always take rank with his mother, even if his father be of no rank. But the son of a man of rank is not necessarily entitled to rank unless his mother be a chieftainess.

I am aware that this fact of rank being transmitted on the mother's side in preference to the father's, usually indicates a low state of morals, but it is also an indication of the superior position held by women.

2. The existence of hereditary ranks and titles among the brown Polynesians, appears to me to indicate a former condition higher than what is usually understood as a savage state.

Among them we find nearly as many ranks and grades as are found in our most civilised countries. Rank is hereditary; a long and good pedigree is of as much importance in Polynesia as in any part of the world. In some islands, although there is no Heralds' College, there is something which answers the same purpose. A special study is made of pedigree. In disputes

about ranks and titles, which are of not infrequent occurrence, the old men who are specially up in questions of this kind, and who are looked to as the keepers of the heraldic records, will trace the pedigree of a family backward through all its ramifications, from generation to generation, until they come to the bluest of the blue-blood in some ancestor of the heroic age.

The aspiring scion of an upstart family, which has been ennobled for only a few generations, is scornfully looked down upon, and "snubbed" by the representative of what we may, for convenience, call, one of the old Norman families. Although he may be able to trace his pedigree to a real hero, he may be told, at a public gathering of the people, by a rival chief, that his family is but of yesterday.

One cause of a recent dispute about the title to royalty in Samoa, is a thing of this kind. The most popular and most powerful family, which claims a right to provide a king for the islands, is of comparatively recent origin. The founder of this family obtained his title during one of the wars between the Tongans and the Samoans, of which the traditions of the latter people are full. The story may be worth giving. It is as follows. The Tongan people, under the leadership of their king, invaded Samoa, and overran the island of Upolu. This man determined to drive away the invading force. He defeated the Tongans, and drove them the entire length of the island. The defeated king was much impressed with the bravery, and also with the magnanimity of his opponent, for he had scorned to slay or in any way injure the women who accompanied the invading force. Before leaving the island, the king sought a truce and made friends with the warrior. They met; and the defeated king greeted his conqueror with these words: "Malietoa! Malietau!" which mean, enough of bravery! enough of war! From that time the first exclamation—enough of bravery—was adopted as the title of nobility for the brave warrior. It is the Malietoa of the present day who is the popular candidate for the kingship.

3. The tenure of landed and other property; the systematic division of all the land, even to the tops of the mountains, among the people; and the hereditary transmission of such property from generation to generation, all seem to me to point to something far above mere savagery. I have explored a good many of the mountains in the Samoan Islands, but I never found a peak, or a valley, a mountain torrent, a water-fall, or even a remarkable rock, which had not a specific name. Many of the most remarkable places and objects have interesting myths connected with them, which point back to the distant past of, what I say call, their heroic age.

4. The traditional and mythological poetry of the Malayo-Polynesians also indicates some intellectual elevation in former times. It appears certain that the former intellectual status of the people was much superior to the present. Some of their myths and poems have a considerable amount of beauty in them.

The keeping of these myths intact has always been considered a matter of very great importance by the people in past times. But the diligence of the keepers of these records has, in a great measure, died out in the islands where Christianity has been long introduced. The old men retained their knowledge of them; but a younger generation, growing up with many new ideas of new things to occupy their attention, have, almost as a matter of course, neglected to learn and retain these traditional songs and myths of their country. It is the old story of new things displacing the old, which we constantly find wherever we go.

It is doubtful whether it would be possible, under the new conditions obtaining in the islands, for the present generation to retain all their old myths with the verbal accuracy with which they have been retained in the past. The mere labour of fixing them in the memory could scarcely be gone through by the present generation. The possession of books, which they can read and refer to at all times when they wish to refresh the memory, has made them unwilling to take the trouble of committing to memory these long stories and poems. The only way of securing them would have been by writing. But no native seems to have thought of this until it was suggested to some of them very recently. And the jealousy with which the choicest myths were guarded by their recognised keepers, presented a great obstacle in the way of committing them to paper.

These keepers usually belonged to a few families, and it was their duty to retain intact, and transmit from generation to generation the myths and songs entrusted to their custody. The honour of the families was involved in it. It was the hereditary duty of the elder sons of these families to acquire, retain, and transmit them with verbal accuracy. And it was not only a sacred duty, but the right of holding such myths and songs was jealously guarded as a valuable and honourable privilege. Hence the difficulty of having them secured by writing. Care was taken not to recite them too frequently or too fully at one time. Sometimes they have been purposely altered in order to lead the hearers astray. Missionaries and other foreign residents who have manifested an interest in these myths, have often been deceived in this way. Only a person thoroughly familiar with the language, quite conversant with the habits of the people, and

who had their confidence, could secure a trustworthy version. And this was usually secured only after a promise made to the keepers of these treasures not to make it public in the islands.

But notwithstanding these difficulties, some missionaries and others have succeeded in making large collections of choice myths and songs, and I am not without hope that before very long we may succeed in collecting them together for the formation of a comparative mythology of Polynesia.

I have myself given little attention to this branch of study, having been fully occupied with other work. But for some time I have been trying to induce others, who have large stores of such treasure, to arrange and translate their material so as to make it available when the time arrives for utilising it. I have also tried to induce the most intelligent of the natives in Samoa and some other islands, to commit to writing all they can possibly obtain. In this way I have already secured some material from Samoa, the Tokelau, Ellice, and Gilbert Islands.

I have recently learnt with great pleasure that Mr. Trübner is about to publish an important work on Polynesian Archæology* founded on legends, chants, &c., which have been collected in the Hawaiian or Sandwich Islands. From the preface to this work, a proof of which (by the courtesy of Mr. Trübner) I have read, I gather that it will be a valuable contribution to the subject on which it treats; although probably some of the author's theories founded on his material, may not meet with universal acceptance from students of Polynesian archæology.

Being specially interested in the languages of Polynesia, I regard with great interest, the collection and publication of the ancient myths, and songs of the people, on account of the light they throw on the changes which the various dialects have undergone. Most of these legends and songs contain archaic forms, both idioms and words, unknown to most of the present generation of the people. Hence they furnish the ethnologist and philologist with earlier and more valuable material for tracing the affinities of the Polynesian dialects with other languages than anything which can be obtained from a study of these dialects as at present spoken.

The way in which verbal accuracy in the transmission of the legends and songs has been secured is worth mentioning. In some islands all the principal stories, indeed all which are of value, exist in two forms, in *prose* and in *poetry*. The prose form gives the story in simple language. The poetic gives it

* The title of this work has since been changed to "An Account of the Polynesian Race, its Origin and Migrations, and the Ancient History of the Hawaiian People." By A. Fornander.

in rhythm, and usually in rhyme also. The poetic form is used as a check on the more simple and more easily changed prose form. As it is easy to alter and add to the prose account, that is never regarded as being genuine, unless each particular has its poetic tally. An omission or interpolation in the poetic form would, of course, be easily detected. Thus the people have recognised the fact that a poetic form is more easily remembered than a prose form, and that it is better adapted for securing the strict accuracy of historical myths. May not this have been what gave origin to poetry in all parts of the world ?

I conclude this short and imperfect paper with a few verses from the commencement of a Samoan song of great antiquity on the creation of land out of the waste of water.

Original.

- 1 Galu lolo ; ma galu fătio'o ;
- 2 Galu tau, ma galu fefatia'i ;
- 3 O le auau peau ma le sologā ;
- 4 Na ona faafua, a e le fati peau.
- 5 Peau taoto ; peau taalolo ;
- 6 Peau mālīe ; peau lagatonu ;
- 7 Peau a lili'a ; peau la'aia ;
- 8 Peau fatia ; peau taulia ;
- 9 Peau tautala ; peau lagava'a ;
- 10 Peau tagata ; peau a Sisifo mai Gagae ;
- 11 O lona soa le auau tata'a.
- 12 E mapu i lagi tulf* mai vasa.
- 13 Tangaloa fia mālōlō,
- 14 Tā lilia i peau a lalō.
- 15 Fea le nuu na mua'i tupu,
- 16 Tangaloa e taumuli ai ?
- 17 Manu'a-tele na mua'i tupu.

Translation.

- 1 Rollers flooding ; rollers dashing ;
- 2 Rollers fighting ; rollers clashing ;
- 3 The current of waves sliding along,
- 4 Surging high, but breaking not.
- 5 Waves reclining ; waves uniting ;
- 6 Waves agreeable ; waves gentle ;
- 7 Waves affrighted ; waves overleaping ;
- 8 Waves breaking ; waves warring ;
- 9 Waves roaring ; waves storming ;
- 10 Waves human ; eastern waves marching west.
- 11 His attendant the wandering current.
- 12 Rests in heaven the plover from ocean.

* The tulf is the bird, *Charadrius fulvus* Gml., which is known as Tangaloa's plover, tulf a Tangaloa.

13 O Tangaloa *! I fain would rest,
14 These lower waves affright my breast.
15 Where is the land which first sprang up,
16 Where Tangaloa holds the helm?
17 Manu'a-telet† first sprang up.

In the discussion of the above, Major-General A. Lane Fox, and Mr. Hyde Clarke took part.

* Tangaloa, the great Polynesian deity.

† Manu'a, the eastern islands of Samoa, mentioned in many Polynesian legends.

ANTHROPOLOGICAL MISCELLANEA.

THE following notice of the life and labours of the late Dr. Campbell, will doubtless be of interest to the Institute, of the Council of which he was so distinguished a member.

Dr. Archibald Campbell, late Surgeon-Major in the Indian Army, was the son of Archibald Campbell, Esq., of Ardover, in the Island of Islay, North Britain, where he was born on the 20th April, 1805. He studied in Glasgow University, then Edinburgh University, from 1824 to 1827, where he graduated, M.D. He was appointed an Assistant Surgeon in the Honourable Company's Service in 1827; and in June, 1828, joined the horse artillery at Meerut, then a strong corps of six troops of Europeans and natives, with a large establishment of native followers attached. With this distinguished corps he served four years, during which he suffered much in health from exposure to the climate, in hospital and out-door duties. During his service with the horse artillery, he was twice appointed to do duty at the European Convalescent Depot, then recently established at Landour, in the Western Himalaya, and here the exposure out of doors to the climate in the rainy season, and in damp newly-constructed barracks and hospital, seriously affected his health.

From the horse artillery he was appointed in 1832 to be surgeon at Katmandhoo in Nipal. Here he had the good fortune to serve on the staff of the British Resident, Mr. B. H. Hodgson, whose influence, interest, and example, greatly contributed to determine his future career, both as an officer under Government, and a zealous collector of information on many subjects connected with the Himalayan people and productions, etc. Mr. Hodgson was at that time actively engaged upon those inquiries into the literature, history, language, and customs of the Cis- and Trans-Himalayan races, and into the geology of Nipal and Thibet, which have placed him in the foremost rank of oriental scholars and naturalists. Campbell did not fail to profit by the brilliant example set before him, nor did he neglect his duties for these pursuits; on the contrary, he so rapidly gained the confidence of his superiors, that within a little more than a year, namely, 1833, on the recommendation of his chief, he was appointed Assistant Resident, which he retained during the remainder of his sojourn in that country.

Of the zeal, ability, and assiduity with which his political duties

were performed, the following official communications, addressed by his able and accomplished superior to the Political Secretary to the Government of India, bear ample and generous testimony from B. H. Hodgson, Esq., Resident to the Government of India.

"SIR,

"Dated October 18th, 1834.

"I have the honour to forward to you, herewith, the required narrative of our political relations with this Durbar, drawn up by Dr. Campbell, who commenced it at the time he officiated as my assistant, and whom I permitted to complete it, in mere justice to a zeal and merit which seemed to me deserving of that encouragement.

"I trust that his Honor in Council will have the kindness to submit this performance to the favourable notice of the Right Honourable the Governor-General of India; and I have no hesitation in saying, that it is extremely well executed, and calculated to reflect much light upon our existing unsatisfactory position in regard to Nipal."

(Signed)

"B. H. HODGSON."

Nor was the Government of India slow in responding to the encomium of Mr. Hodgson. Thus in 1853 the Secretary to the Government writes to Mr. Hodgson, under date April 6th, 1836.

"SIR,

"I am directed to acknowledge the receipt of your letter, dated the 18th of October last, with the enclosed narrative of our political relations with the Nipal Durbar, drawn up by Dr. Campbell, and to state in reply, that the manner in which this document has been prepared, is considered to reflect great credit on Dr. Campbell."

And again, under date April, 1836.

"SIR,

"I am desired by the Right Honourable the Governor-General of India in Council to acknowledge the receipt of your letter, dated the 25th of July last, forwarding a memorandum by Dr. Campbell upon our relations with Nipal.

"2. In reply, I am directed to request that you will convey to Dr. Campbell the assurance of the approbation with which his Lordship in Council has viewed this additional proof of his industry and zeal."

In 1836, he was, on the recommendation of the Resident, employed to accompany a mission from Nipal to the Governor-General in Calcutta, the first demonstration of the kind ever made by the Goorkhas to the British Government. A service which he conducted to the entire satisfaction of his employers, who thus signified their approval; a reply (dated September, 1837) to the official account of a mission and the causes which led to it. Transmitted by the Resident.

"SIR,

"I am directed by the Right Honourable the Governor-General of India in Council, to acknowledge the receipt of your letter, dated the 8th instant, submitting memorandum by Dr. Campbell, on the causes and motives of the recent mission from Nipal to Calcutta, with your remarks.

"2. In reply, I am desired to acquaint you that the account furnished by Dr. Campbell has been perused with much attention by his Lordship in Council, and that he considers the compilation as being highly creditable to that gentleman.

"It will be printed in a continuation of the brief notice of Nipal, in the tract compiled by Major Sutherland."

In 1837, the severe illness of the Resident compelled him to apply for leave of absence on medical certificate, on which occasion he recommended that Dr. Campbell should be charged with the whole affairs of the Residency; this was at a critical time, when Bhim Sen Thappa, who had been Prime Minister for upwards of twenty years, was deposed by the "Pandés," his rivals and inveterate hereditary foes.

The Resident's recommendation of Dr. Campbell was couched in the following terms:—

"The vital importance to me of having the advantage of the whole cold season below, induces me to hope that the R. H. the G. G. will be pleased to sanction, as a temporary arrangement, my making over charge to my Assistant, Dr. Campbell, a gentleman whose personal qualities and local knowledge and experience, give me all reasonable assurance, that he could (if such were the pleasure of the Governor-General), ably supply my place here, even at the present critical season, and so far diminish my vexation at this untimely compulsory departure."

This was at the outbreak of the Affghan war, the most critical period that India has passed through in our days, not excepting that of the Mutiny. The urgency of this emergency called Mr. Hodgson back at the risk of his life, and the marvellous success of his measures for restraining the Nipalese from taking part against the British, whether by intrigues with the Sikhs, etc., or by open warfare, are now matters of history.

During the period of Dr. Campbell's residence in Nipal, he applied himself in acquiring a knowledge of the Ghorka language, and to collecting valuable information, especially respecting the arts, manufactures, and agricultural industry of the Nipalese. These, which were embodied in various Reports and Papers, which were subsequently published, were in the first instance communicated to the Resident, who forwarded them to the Government of India, with high encomiums on their author, which was heartily endorsed by the Governor. Thus in August, 1836, the Governor-General sends the following communication to the Resident:—

"SIR,

"I am desired by the Right Honourable the Governor-General of

India in Council, to acknowledge the receipt of your letter, dated the 30th ultimo, submitting notes by your Assistant, Dr. Campbell, on the state of the arts in Nipal.

"2. In reply, I am directed to acquaint you for the information of Dr. Campbell, that his Lordship in Council has derived much gratification from this additional instance of that gentleman's zeal and ability, in collecting information of a useful and interesting nature."

And again, in February, 1837, he writes to the Resident :—

"SIR,

"I am desired by the Right Honourable the Governor-General of India in Council, to acknowledge the receipt of your letter dated the 8th instant, transmitting copy of a memorandum drawn up by Dr. Campbell, relative to the Agriculture of Nipal proper, which is considered to be very creditable to that officer's zeal and ability.

"I am directed at the same time to acquaint you that a copy of the memorandum in question will be forwarded for the information of the Agricultural and Horticultural Society of this Presidency."

In 1838, the Secretary to the Government writes in a despatch to the Honourable Court of Directors of the East India Company :—

"We have read with much interest the papers which have been prepared by Dr. Campbell, on the 'Agriculture of Nipal,' on the 'Connection and transactions between the British Indian Government and Nipal from 1793 to 1812,' and on the 'Mission from the Goorkha Durbar to the Governor-General of India at Calcutta, in 1835 and 1836,' with the accompanying remarks by the Resident, and we are of opinion that they do much credit to the talent and research of these gentlemen."

No one expressed a greater interest in, and value for, Dr. Campbell's labours than the late Lord Auckland, the Governor-General of India, who in 1837, thus addressed him through his Private Secretary :—

"MY DEAR SIR,

"I am desired to acknowledge the receipt of your letter of the 3rd instant, and in reply to convey to you his Lordship's best thanks for the copies therewith forwarded of your very interesting and valuable papers on the agriculture, arts, and meteorology of Nipal."

Now were his medical services less useful, whether in a purely professional point of view, or as tending to render the Embassy more beneficial to the natives of Nipal. To this again the Resident bears high testimony, further in a letter addressed to Dr. Campbell; and then in a despatch forwarded to the Government of India; these letters are as follows :—

"SIR,

"I have the honour to acknowledge the receipt of your public letter of this day, stating the progress made within the last four years in conquering Nipalese prejudices, by means of medical skill and kindness; and to acquaint you in reply, that I consider this

progress, although partly of course, attributable to the general course of events, yet partly also, to your personal merit, which I have very great pleasure in thus publicly acknowledging."

"SIR,

"I am desired by the Right Honourable the Governor-General of India in Council, to acknowledge the receipt of your letter, dated the 11th ultimo, transmitting copy of correspondence with Dr. Campbell, stating the progress made within the last five years in conquering Nipalese prejudices by means of medical skill and kindness; and in reply to observe that the facts therein stated are in a high degree honourable to the character of that intelligent and zealous Officer."

In 1839, Dr. Campbell was selected by the Governor-General (in consideration of his intimate knowledge of the character and feelings of the Nipalese officers, and the confidence of the Durbar produced thereby), to accompany the Nipalese Commissioners, to investigate a boundary dispute with "Sikim," which for five years our Government had not been able to decide satisfactorily. The result was a settlement of the dispute; on which he received the approbation of Government, conveyed in the following letter to the Resident from the Secretary to the Government of India, dated April, 1836:—

"SIR,

"I am desired by the Right Honourable the Governor-General of India in Council, to acknowledge the receipt of two letters from you of the dates and on the subjects noted in the margin."

"4th April, 1836.

"Forwarding copy of a correspondence with Dr. Campbell on the subject of his claim to draw deputation allowance up to the day the presents of the Governor-General were delivered to the Rajah.

"2. In reply, I am directed to acquaint you that the Governor-General in Council, has learnt with much pleasure the satisfactory termination of the Embassy from Nipal, a result which is mainly attributable to the judgment and address displayed by Dr. Campbell in the conduct of the delicate and difficult duties confided to him."

"5th April, 1836.

"Reporting your having been invited to witness the delivery of the presents from the Governor-General to the Maharajah, which were much admired."

The successful accomplishment of this mission, no doubt materially contributed to his being chosen in the year following, for the important duty of superintending the settlement in Sikim, and consequently the political communications between the Government of India and Rajah of Sikim.

British Sikim was at that time a small and powerless State, interposed between Nipal and Bhotan, which was coveted by the

former warlike people, but protected by Great Britain against them. The importance of this post may be imagined, when it is considered, that were it once given up, the Nipalese would take not it only, but the whole Himalaya extending to the extremity of upper Assam, and thus secure to this bellicose race an almost impregnable position of many hundreds of miles in extent, from which they would have threatened all Bengal and Assam whenever so disposed.

In 1840, Dr. Campbell took charge of the new settlement of Darjeeling, and of our political relations with Sikim. This was indeed a most difficult and anxious charge, for the performance of the duties of which we must refer to a report on Darjeeling by Mr. Welby Jackson, Special Commissioner, which was published by the Bengal Government in 1855. It sets forth truly many of the obstructions he had to contend with; and which he signally conquered. It is also highly favourable to his administration of all the various departments of his office, and for which he was warmly commended by the Board of Revenue, and the Government of Bengal. In addition to his official duties while at Darjeeling, he made several important contributions to our knowledge on the statistics, geography, agriculture, tribes, etc., of Sikim and Nipal, a catalogue of which will be found at the end of this notice. Of the estimation in which his labours as Superintendent were held by the Government of India, the following official despatches afford abundant proof. The first is from the Secretary to the Government, dated Calcutta, March, 1842, and refers to a dispute between the contiguous States of Bhotan and Likhtsan.

"SIR,

"The manner in which you have conducted the duties of your present deputation to the Bhotan frontier, is considered by the Governor-General in Council to be highly creditable to you; and his Lordship in Council has marked with much pleasure and approbation the judgment and ability with which your proceedings have been conducted."

The next is from a letter addressed by the Board of Revenue to the Government of Bengal, and is dated Calcutta, July, 1837; it runs thus:—

"The perusal of Dr. Campbell's report has impressed the Board with a very high opinion of him. He is evidently zealous, active, and deeply interested in the prosperity of the Province and its people; and he brings to bear upon these active talents a sound and discriminating judgment. Dr. Campbell deserves the thanks of the Board and of the Government for his successful management. It is a fortunate circumstance for the new territory, they observe, that it was placed under so able an Officer."

And this was followed by a despatch from the Secretary to the Government of Bengal, in the following words:—

"The Deputy-Governor entirely agrees with the Board in the high opinion of Dr. Campbell, which the perusal of this report has

led them to form; and he begs that an expression of his sentiments on this subject may be communicated to that Officer.

In 1849 Dr. Campbell having proceeded into Sikim for the purpose of bringing about a better state of affairs between the British Government and that State, than could be effected from Darjeeling, found that the Rajah and his advisers were so barbarous and ignorant, as to believe that if the representative of the Government could be put under restraint, they could not fail to extort favourable concessions from him, and the abandonment of all the just and pressing demands which the British Government had made upon him.

In pursuance of this project, which was in accordance with custom in the intercourse of Thibetan States, he was seized, bound, treated with brutal violence, and called upon, at the risk of his life, to put his signature to whatever might be dictated to him. Although this failed to produce the expected result, he was detained in durance for six weeks, with his companion, Dr. Hooker, from which he suffered greatly.

After his release, the Rajah failed to deliver up the persons who committed this outrage. The most valuable portion of his territory was consequently annexed, and the civil charge of it made over to Dr. Campbell, in addition to his previous duties; but without any addition to his pay or allowances. This new territory was an improving one, and at once yielded 40,000 rupees per annum, which was a clear gain to the Indian Government.

Although an increase to his allowances for increased labour and responsibility had been sought by him, and recommended by the Special Commissioner, it was most unjustly withheld.

In 1852, while engaged in making a new Revenue Settlement of the "Turai," or lowlands at the base of the hills, he contracted a severe fever; from the effects of which he did not fully recover till 1856, when another visit on duty to the same malarious district produced a fresh attack of fever, so severe and repeated, that he was compelled to quit India on leave of absence, having then completed more than twenty-nine years of continued service.

In 1856 Dr. Campbell visited England on sick leave, and resided at Richmond and Hastings with his wife and family, till April, 1857, when he returned to his duties at Darjeeling, and remained in harness till February, 1862, where he retired on his pension, having served for thirty-five years without increase of pay or allowances, or other recognition for such distinguished services than the hardly earned letters of commendation, which of themselves should have entitled him to some mark of the favour of his Government and the gratitude of his country. And what these services were was briefly summed up by Sir Joseph Hooker, K.C.B. (now President of the Royal Society), after two years' residence in Sikim, in the following papers extracted from his Himalayan travels. "Dr. Campbell raised British Sikim in ten years from its pristine condition of an impenetrable jungle, tenanted by half savage and mutually hostile races, never previously brought into contact with Europeans, to that

of a flourishing European Sanataria and Hill Settlement, an inter-tribal mart of the first importance, and a rich agricultural province."

This was written nearly a quarter of a century ago, since which time Darjeeling has become a famous centre of tea and cinchona cultivation, and the favourite resort of invalids from Bengal.

Again, Dr. Hooker says, "referring to the time when Dr. Campbell was appointed to the charge of the station, 'Sikim' was the only part of the Himalayas east of Keencrose, accessible to Europeans. It was inhabited by five peaceful native tribes, speaking different and utterly unknown languages, viz., 'Lepchas,' 'Moormis,' 'Tibetenses,' 'Limboos,' and 'Mechis,' and who were overrun and mercilessly harrassed by two aggressive races, the powerful Bhotanese and the warlike Nipalese, who spoke as many other languages. It was Lord Auckland's object to reconcile these heterogeneous elements, and make of Sikim a centre of British rule, and a commercial *entrepôt*, in which all should find justice, protection, and a mart for their produce or wares. To this end he selected Dr. Campbell, who determined therefore to make the fulfilment of these aims the one object of his Indian career. In two months he saw his way, and formed his plans, and the success of his efforts is vouched for by report of the Commissioner referred to at commencement of this document."

More emphatic, if possible, and of greater value, as being officially written and officially received by Government, is the following:—

Extract from a report to Government on the Civil Administration of the Darjeeling District, by Welby Jackson, Esq., Special Commissioner.

Para. 19, 20, 21, and 22.

Dated September 21st, 1853.

"Remarks.—In speaking of the administration of this district generally, before going into the detail of the various departments, it is necessary to observe that whatever has been done here has been done by Dr. Campbell alone. He found Darjeeling an inaccessible tract of forest, with a very scanty population; by his exertions an excellent Sanitarium has been established for troops and others; a Hill Corps has been established for the maintenance of order and improvement of communication; no less than seventy European houses have been built, with a bazaar, jail, and buildings for the accommodation of the sick in the *Depôt*; a revenue of 50,000 rupees has been raised, and is collected punctually and without balance: a simple system of administration of justice has been introduced, well adapted to the character of the tribes with whom he had to deal; the system of forced labour formerly in use has been abolished, and labour, with all other valuables, has been left to find its own price in an open market; roads have been made; experimental cultivation of tea and coffee has been introduced: and various European fruits and grapes; and this has been effected at the same time that the various tribes of inhabitants have been conciliated, and their habits and prejudices treated with a caution

and forbearance, which will render further progress in the same direction an easy task. The way has been shown, and those who succeed Dr. Campbell have only to follow it, as far as they are capable of doing so.

"20. It is not only to the simple matters of administration, the results and objects of which are immediate and palpable, that Dr. Campbell has applied himself; he has exerted his abilities in the pursuit of science, and in exploring the routes, the ultimate object of which is less apparent to those who act under more limited views of direct and tangible utility. His journey to the confines of Tartary, at much personal risk, has extended our knowledge of the geography of the great Himalayan range, of its position and produce, and of the means of communication with the countries to the north of it. I may in short say of him, that to him is the Government indebted for the formation of the district of Darjeeling, for the revenue which is now derived from that district, and for the organisation of the whole system of management. The people, on the other hand, are indebted to him for the blessings of a just and paternal Government, under which they at this moment enjoy a degree of liberty, as well as of protection of property and person, unknown to them under their former masters; and they are fully sensible of this advantage.

"21. It is to the personal character of the Superintendent that this success is due; and to the admirable temper, deliberation and forethought with which he has acted throughout; and this success would have been greater had he received more support, and more ample means of carrying out the sound views which he entertains of improvement of the district entrusted to his charge.

"22. If actual work and the importance of it be considered, there is no comparison between the mere political duty of a Resident, and the toil and tact required in performing the task assigned to the Superintendent of Darjeeling, and I have no doubt that if Dr. Campbell's measures and views receive support, this station of Darjeeling may yet be rendered of much greater importance than has hitherto been ascribed to it."

The following is a list of the statistical and other papers, by Dr. A. Campbell, which were published in India from 1833 to 1857.

1.—Observations on the Goitre in Animals as it occurs in Nipal.—From "Medical and Physiological Society," 1833.

2.—On the Agriculture and Rural Economy of the Valley of Nipal, vol. iv.—"Journal of the Agricultural and Horticultural Society of India," 1837.

3.—On the Agricultural and other Implements used in the Valley of Nipal.—Ditto, ditto.

4.—On the state of the Arts of Weaving, Spinning, and Dyeing in the Valley of Nipal.—Ditto, ditto.

5.—On the Musical Instruments of the Nipalese.—Ditto, ditto.

6.—Barometrical and Thermometrical Observations at Cathmandoo in 1837.—"India Review."

- 7.—On the Proboscis of the Elephant.—“*India Review*.”
- 8.—On Earthquakes in Nipal and Thibet in 1833.—“*Journal of the Asiatic Society*.”
- 9.—On the Mech Tribe of Sikim, with Vocabulary of their Language, &c.—Ditto, ditto.
- 10.—On the Lepchas of Sikim, with Vocabulary, &c., &c.—Ditto, ditto, and in “*Journal of the Anthropological Institute*,” 1873.
- 11.—On the Limboos of Nipal and Sikim, with Vocabulary, &c., &c.—Ditto, ditto, and in “*Journal of the Ethnological Society*,” 1869.
- 12.—On the Moormis of Nipal and Sikim.
- 13.—On the Haioos of ditto.
- 14.—Note on the Origin and Language of the Limboos.—“*Journal of the Asiatic Society*.”
- 15.—On the Comparative Anatomy of the Dog and the Wild Dog, Buansu of Nipal.—“*Journal of the Natural History*.”
- 16.—On the Comparative Anatomy of the Ox, Bison, and Gavial.—Ditto, ditto.
- 17.—A Gardener's Calendar for Darjeeling.—“*Journal of the Agricultural and Horticultural Society*,” 1840.
- 18.—On the Manufacture of Paper from the Bark of the *Daphne Cannabina*, vol. v.—“*Journal of the Agricultural Society of Calcutta*.”
- 19.—On the Soils and Cultivation round Darjeeling.
- 20.—On the Cultivation of the Tea Plant at ditto, 1846.
- 21.—On the “Poosh” Fibre, or Hemp of Nipal and Sikim, from a species of Nettle.—“*Journal of the Agricultural Society*,” 1847.
- 22.—On a Lime Deposit in Sikim, 1843.
- 23.—Proposal for an interchange of Agricultural Seeds between different districts in India.—“*Journal of the Agricultural Society*,” 1848.
- 24.—Itinerary from Phari in Thibet to “Lassa,” 1848.—Published in Phari.—“*Journal of the Asiatic Society*.”
- 25.—Routes from Darjeeling to Thibet, 1848.—Ditto, ditto.
- 26.—On the Elevation of Peaks in the Himalaya, 1848.—Ditto, ditto.
- 27.—Journal of a Trip to Sikim in December, 1848, with a Map.—“*Journal of the Asiatic Society*.”
- 28.—On Winds and Storms in Thibet, 1851.—Ditto, ditto.
- 29.—Report on the Sikim Morung 1851.—Published by the Government of Bengal.
- 30.—On the Cultivation of Cotton in the Morung.—Ditto, ditto.
- 31.—Diary of a Journey through Sikim to the confines of Thibet, in 1849–50.—“*Journal of the Asiatic Society*.”
- 32.—Report on Copper Ores in the Darjeeling Territory, 1854.
- 33.—Notes on Eastern Thibet, with a Chart, 1855, Phari. No. 1, February, 1871.—“*Journal of the Asiatic Society*.”
- 34.—Note on the Limboo Language, with an Alphabet, 1855.—“*Journal of the Asiatic Society*.”

35.—Paper on the Joshues.—“*Journal of the Anthropological Institute*,” March, 1873.

36.—Sketch of Political Relations between the Bengal Government and Sikim to 1861, with supplement to 1874. January, 1874.—*Oriental*.

37. Paper on the Commerce of India.—“*Journal of the Society of Arts*,” March 17th, 1871.

38.—Note on the Valley of Choombi.—“*Royal Asiatic Society, Great Britain and Ireland*,” September, 1873.

39.—Paper on Indian Teas, and Importance of extending their adoption in Home Market.—“*Society of Arts Journal*,” 30th January, 1874.

His labours for the welfare of Darjeeling were unabated even after he ceased to superintend its affairs. His efforts had been devoted to make it a self-supporting settlement, and in this he must be considered to have succeeded. The ultimate result of his example will be the constitution of new English kingdoms in the healthy mountain regions of the Himalayas, which will become fresh centres of civilisation, barriers against Russia's aggressions, and safeguards against revolt in the plains.

His active attention to the introduction of tea experiments in Darjeeling was at length rewarded by the establishment of an extensive culture, the produce of which has obtained a distinct recognition in the London market. In endeavouring to effect this, Dr. Campbell found it necessary to direct his attention to the whole subject of Indian tea culture and manufacture, and he thus rendered a service to the general interests. It was intended at one time to form an organisation in London of Indian tea planters. His papers at the Society of Arts on Indian teas, those he obtained, and the discussions he promoted, led to useful results. Prizes under his direction were given for tea manuals, and he presided over the Committee of Awards at the Society of Arts.

His efforts for promoting trade with Thibet, China, and Central Asia, not only by Darjeeling and Sikim, but by every practicable route, formed a distinct branch of his patriotic labours, and which brought him into direct communication with the governing authorities of India.

It is indeed difficult to doubt the practical career of a man, whose knowledge was sound, whose experience was well based, and whose influence, strengthened by disinterestedness and high personal character, was effectively exercised. Thus his labours were far reaching, and will long bear fruit, for they were in promotion of our imperial policy, and of the welfare as well of the natives of India as of his fellow countrymen.

On the Council of the Ethnological Society, as well as afterwards on its amalgamation with the Anthropological Institute, Dr. Campbell was a special authority and referee in every matter relating to Central Asia. He also applied himself to the promotion of a better knowledge of all Indian subjects. His loss will be sensibly felt, occurring after that of Mr. Crawford, who devoted

himself to Malayan and Australasian topics; and that of Lord Stratford, on Turkish and Central Asiatic matters, leaves without leaders a whole region of anthropology, extending from Central Asia to the shores of Australia. He exercised no less weight in the Royal Asiatic Society.

Dr. Campbell will be none the less missed in the treatment of numerous political and economical measures connected with India, on which he brought to bear not only his own exertions, but the co-operation of many men of influence, who reposed confidence in his counsels. Indeed the full measure of his value will only now be felt, because quiet and unobtrusive; he was the representative of powerful opinions, applied to questions, which small in aspect were important in their ultimate consequences.

On his return to India, Dr. Campbell took an active interest in promoting the communication between Calcutta and Darjeeling by road, and this led to his being consulted with reference to the best route for establishing a railway; a contest was thus begun between the Northern Bengal and Eastern Bengal Companies, and Dr. Campbell pursued this important subject, until under the late Lieutenant-Governorship of Sir G. Campbell, he was successful in promoting the establishment of the line now in progress.

It was during the early correspondence on this subject, that he gave great encouragement to renewed efforts for the promotion of hill settlements and sanatoria, which led first to the House of Commons' Committees, and reports on Indian Colonisation in 1858 and 1859, under the chairmanship of the late William Ewart, M.P. This agitation, in which Dr. Campbell took an active part, led ultimately to the establishment in 1867, of the Indian Committee, and Lectures of the Society of Arts in 1867, in which Dr. Campbell was a leading adviser.

In correspondence with the Manchester Cotton Supply Associations in 1858 and 1859, and subsequently, Dr. Campbell took an active interest in promoting experiments with Sea Island Cotton in the Terai. In this, and in silk culture, and the introduction of Tussah silk, Dr. Campbell took an immediate part, and laid the foundation of that agricultural progress in the Terai of Darjeeling, which will ultimately extend throughout that belt at the foot of the Himalayan ranges. With that spirit of perseverance in which Dr. Campbell never relaxed, until he laid the foundation of success, he was induced to take part in the labours of the late Silk Supply Association, and of the Cotton Supply Committee, and of the Silk Supply Committee of the Society of Arts.

After his arrival in England, in 1862, he resided in London, and he immediately devoted himself with his wonted energy and activity to developing the resources of the Sikim Himalaya, and bringing its commercial products before the British public. He was for a short time Director of a Darjeeling Tea Company, and took an active share in its concerns; he joined the Society of Arts, and was a constant attendant at their meetings, at which he often took part. He was an active member of the Anthropological Institute, and



Nº 1 VERY FAIR

BROCA-23-47



Nº 2 FAIR

BROCA-52



Nº 3 GOLDEN

BROCA-40



Nº 4 RED

BROCA-30



Nº 5 RED BROWN

BROCA-28



Nº 6 LIGHT BROWN

BROCA-46



Nº 7 BROWN

BROCA-42-28



Nº 8 DARK BROWN

BROCA-27



Nº 9 BLACK BROWN

BROCA-34



Nº 10 BLACK

BROCA-48

made various oral communications to it. Soon after his arrival in England, he was appointed one of the jurors of the International Exhibition, when he exhibited a collection of Derjeeling teas, and was again a juror in that of 1865.

In 1872 he removed with his family to a house at Slough, where he took an active part in the Orphan Asylum, and various local Institutes, whence he made frequent visits to London, always intent on his favourite pursuits, Indian trade and commerce, or Oriental ethnology. He took a deep interest in the Oriental Congress which took place a very few weeks before his decease; and immediately after which his health, which had never been good, broke down finally, and he died at Slough on the 5th November, 1874, after a short but painful illness, and was buried at Upton. He was a warm friend, of a remarkably generous and affectionate disposition; he was liberal in his views of all matters, and averse to disputation, though tenacious of his opinions. He married, at Darjeeling, in 1841, the second daughter of Dr. J. Lamb, of the Bengal Medical Service, by whom he had twelve children, of whom nine survive him.

ANTHROPOMETRIC COMMITTEE.

DURING the past year the Anthropometric Committee of the British Association has been engaged chiefly in systematising their instructions for the use of observers, so as to avoid as far as possible the errors which have arisen from misunderstanding the regulations issued for collecting data. The utmost precision in taking the measurements, and the use of recognised and clearly defined, terms in the descriptions are essential, without which it is impossible to draw up statistics or arrive at general results.

Under the head of *origin*, more definite instructions have been given. "If the individual observed upon has lived habitually in the country he is to be noted under the head of *country folk*. This, however, is not to include residence in large country towns unless the individual so residing is habitually occupied in country pursuits. If both father and mother are also country folk in the sense above defined the entry should be *pure country folk*. In cases where the history of all four grandparents is known, and they, or the majority of them, were all country folk, the entry should have the word *very* prefixed, thus, *very pure country folk*." Similar instructions are to be observed as regards town folk.

Under the head of *eyes*, the terms to be employed are laid down as follows, and to avoid the possibility of error, these terms are inserted at the head of the column in the Schedule which is to be filled in by the observer, viz., grey, light blue, blue, dark blue, light brown, brown, dark brown, green, black; the colours of the

eyes should be viewed at such a distance that minor variations may blend into one general hue and tint.

Under the head of *hair*, the instructions are very detailed. Great difference has existed hitherto in the mode of describing the colour of the hair, thereby rendering the returns quite valueless. The coloured patches in M. Broca's tables were found to be too small to be used at the distance requisite for correct observation. Suggestions have been made that as the colour of the hair of the same head varies with the light, patterns should be shaded also; this, however, only increases the difficulty by rendering the *standard* of uncertain value. It is now recognised, that the standard of comparison should be of one uniform shade, and the difficulty is met by increasing the size of the patterns, and by making the comparison at such a distance that minor shades, as in the case of the eyes, may be merged as far as possible into one general tint. A small book, containing ten coloured patterns, each pattern being five inches by three, carefully matched with typical specimens of hair kindly furnished by Mr. Douglas, hair-cutter, of Bond Street, has been issued by the Committee with the printed instructions. Mr. Douglas's experience in estimating the prevailing colours of hair, having been derived from the practical requirements of the trade, has been of considerable value to the Committee, and will no doubt be the means of establishing suitable standards of comparison for the British Isles. Although the colours in the little book now issued with the instructions, do not in all cases agree exactly with the shades of M. Broca's tables, published in our "*Anthropological Notes and Queries*," representing colours of the skin and hair of different races, they approach them sufficiently to enable a reference to be made in each case, which is done by printing at the foot of each pattern the number of the pattern in M. Broca's tables which corresponds to the colour in the book. When the colour in the book falls between two of M. Broca's patterns, the reference is made thus: Broca 42—26. The ten colours in the book are named as follows, viz., 1 very fair, 2 fair, 3 golden, 4 red, 5 red-brown, 6 light brown, 7 brown, 8 dark brown, 9 black-brown, 10 black, and these terms are printed at the head of the column of *Hair* in the Schedule to avoid the possibility of mistake. It is not of course expected that all the various shades of hair should be accurately matched by these ten patterns, the object being to divide the hair of the country into ten classes, and to give a definite value to the terms employed; the nearest pattern to that of the individual observed upon should be the one recorded in the Schedules.

Coxeter's spirometer as at first constructed for the Committee, not having been found of sufficient size to contain the air exhaled at one breath from the lungs of a full-sized man, the air bag has been enlarged.

The regulations for taking the strength of arm have been revised. It is now decided that the extended arm is in all cases to be free, and it is to be extended straight from the side as nearly as possible in the line of the shoulders. The spring balance is invariably to be

used ; a woodcut showing the proper position for taking this measurement is appended to the instructions.

The small dots for testing the eyesight having been found unsuitable, dots one-fifth inch square, the same size as used for the Army, have been adopted. This measurement is invariably to be taken *out of doors*, to avoid the errors arising from difference of light in rooms. An average day is to be selected ; the individual should stand with his back to the sun, and the card should face the light, but should not be exposed to the glare of the sun ; great care is requisite in taking these measurements.

The attention of the Committee has also been drawn to the desirability of endeavouring to ascertain by means of photographs the various types of physiognomy prevailing in different districts. That characteristic differences of countenance do exist in different parts of the country appears very probable. But the difficulty of obtaining any reliable statistics on the subject is very great, owing to the almost impossibility of establishing any recognised standard of comparison for features ; where one person will fix upon a particular class of physiognomy as characteristic of a district, another person in the same district will select something totally different. It is laid down that the only true method of obtaining reliable results, should be by obtaining as large a number of photographs as possible of persons from different localities, whose descriptions should be, as far as possible, recorded in the manner laid down in the Anthropometric Instructions, regardless of type ; and the Committee should then determine typical forms from an examination of the photographs thus obtained. This, however, entails the collection of an enormous number of photographs, to be followed possibly by some little difference of opinion on the part of the Committee appointed to estimate the types.

It is possible that the best means of arriving approximately at the required results may hereafter be found to be, by appointing several independent observers, say five or six, in the same district, who after careful observation of the people around them, might select certain photographs which they considered typical of the district, and the Committee might then determine by means of the photographs thus sent in by different individuals, whether any agreement could be traced between them. Even then the results will probably have to be received with the utmost caution.

Notwithstanding the greater detail in which the instructions are now issued, it is still to be expected that mistakes will be made by different observers, affecting the uniformity of the tests and invalidating the results. It is therefore proposed that all persons who propose to make observations, should have the use of the various instruments explained to them, and should qualify, by going through the different measurements under the superintendence of an instructor, which function has been undertaken by Mr. J. H. Young, Assistant Secretary to the Committee at the General Register Office, Somerset House.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

DECEMBER 11TH, 1877.

JOHN EVANS, Esq., D.C.L., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

Dr. JAMES F. N. WISE, of Ireland was announced as a member.

The following presents to the Library were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the HOME DEPARTMENT OF THE GOVERNMENT OF INDIA.—Grammar of the Róng (Lepcha) Language. By Col. G. B. Mainwaring.

From the EDITOR.—*Révue Scientifique*, Nos. 22 and 23, 1877.

From the ACADEMY.—*Bulletin de l'Académie Impériale des Sciences de St. Petersburg*. Vol. XXIV, No. 2.

From the AUTHOR.—*The Census of Massachusetts*, 3 Vols. 1875; *A Compendium of the Census of Massachusetts*, 1875. By C. D. Wright.

From the INSTITUTION.—*Report of the Smithsonian Institution for 1876*.

From the ASSOCIATION.—*Proceedings of the American Association for the Advancement of Science*. Vol. XXV, 1876.

From Prof. F. V. HAYDEN, Hon. M.A.I.—*Ninth Annual Report of the U.S. Geological and Geographical Survey of the Territories*; *Bulletin ditto*; *Supplement to the Fifth Annual Report ditto*; *Bulletin of the U.S. Entomological Commission*, Nos. 1 and 2; *The Fur-bearing Animals*. By E. Cones.

From the **AUTHORS**.—British Barrows. By Canon Greenwell, and Prof. Rolleston.

From the **AUTHOR**.—Journal of a Visit to India, and the East. By James McClelland.

From the **EDITOR**.—"Nature," to date.

Mr. WORTHINGTON G. SMITH exhibited some Camera Lucida views of Antiquities in Wales, and some worked flints from Maiden Bower.

Mr. A. J. JUKES BROWNE exhibited a collection of flint flakes, arrow-heads, &c., from Egypt.

A paper by Mr. A. J. JUKES BROWNE, on the above objects from Egypt, was then read by the Director.

On some FLINT IMPLEMENTS *from* EGYPT. By A. J. JUKES BROWNE, B.A., F.G.S.

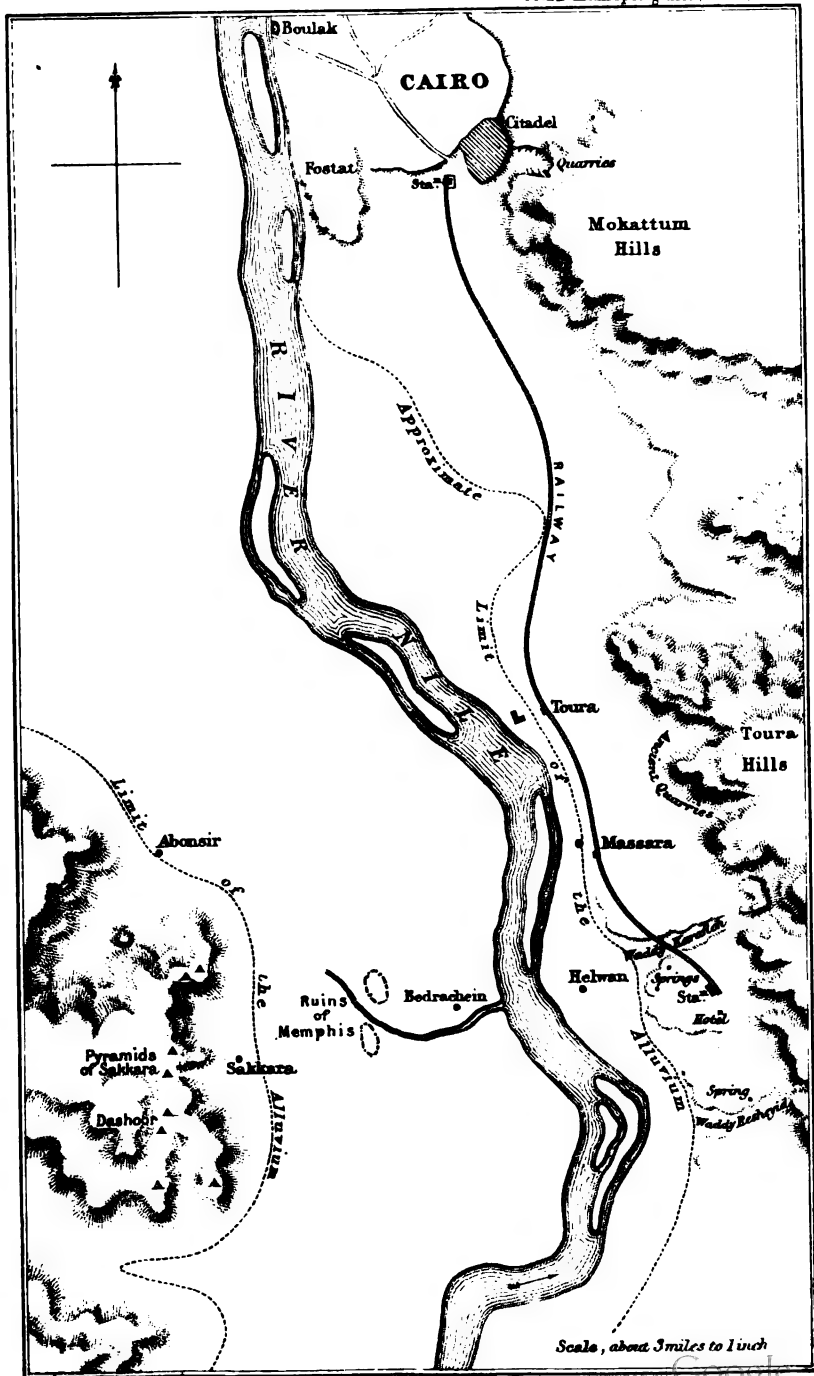
THE flints which form the subject of the present communication were found near Helwan, a village situated on the east bank of the Nile, about fifteen miles south of Cairo.

It is thus described by Dr. W. Reil in his pamphlet on "The Thermal Waters of Helwan:" "At a distance of about four hours from Cairo, the village of Helouan, or Helwan, is romantically hidden in an extensive grove of date palms on the right bank of the Nile. The sulphur springs are situated at a distance of two and a half miles from the village towards the east, at an elevation of 110 feet above the average level of the waters of the Nile, and lie at the foot of the Toura hills, a continuation of the Mokattam range near Cairo, and a part of the Arabian chain.

"The plateau of Helwan is about three miles long from north to south, and two miles wide. It is bounded on the east by the barren and broken mountains of the Arabian chain, which rise to a height of 700 or 800 feet; westwards the plateau descends in a gentle slope to the cultivated plain which is fertilized by the alluvial deposit of the Nile.

"A waddy or valley, called the *Waddy Karafish*, on the north towards Cairo, and another larger and greener on the south, the *Waddy-el-Reshayid*, form the northern and southern limits of the plateau, which is divided into two nearly equal parts by a third valley, the *Waddy Nahkleh*, or *valley of the date palms*, which coming from the mountains passes down in front of the principal spring."

This was written in 1874, and since then the sanatorial settlement near the sulphur springs has rapidly increased: the gardens of the hotel now occupy part of the *Waddy Nahkleh*, but the two old palms from which it takes its name are still standing.



Moreover, at the beginning of this year (1877) a line of railway was opened from Cairo, bringing Helwan within an hour's journey of the capital (*see map*). This railway is carried along the edge of the cultivated plain as far as Mahsara, whence a considerable incline leads up to the elevated plateau, on which the springs occur, and on the surface of which the flint implements are found. It will be desirable therefore to describe the physical geography of the district a little more fully, and to indicate the relation which this plateau bears to the valley of the Nile.

PART I.—ORIGIN AND STRUCTURE OF THE PLATEAU.

THE line of cliff-like mountains bounding the eastern side of the Nile valley is known by the name of the Arabian chain; its continuity is broken about four miles south of Cairo by a wide valley, which divides the range into two *massifs*; that to the northward and in the immediate vicinity of Cairo being called the Jebel Mokattam, and that to the south the Jebel Toura, from a village of that name. It is the continuation of this latter range which forms the hills behind Helwan; near Mahsara they attain a great height (possibly 8,800 feet), but from this point the beds appear to dip slightly towards the south, and slope away in successive ridges of a much less altitude. At the same time they become furrowed by numerous deep watercourses and ravines, the form and sculpturing of which plainly indicate the agencies to which they owe their origin.

The marks of running streams are here exhibited as clearly as the tool-marks of the ancient Egyptians on the walls of their quarries, and the hill-sides are as deeply graven as in our most bleak and rugged English counties. Egypt does not by any means possess a perfectly rainless climate; showers are not infrequent in winter, and the surface being entirely unprotected by any kind of vegetation, the soluble limestone rock is exposed to the full action of the atmosphere, and every little rain-shower takes effect in loosening the stones and washing down the sand. Occasionally, moreover, once in every two or three years perhaps, heavy rains occur and torrents of water descend, sweeping down the valleys, carrying away the loosened blocks, and spreading the débris over the plain below.

The result of this action has been the production of deep trough-shaped valleys through the hills, and the formation of a wide terrace-like plateau stretching out between the line of cliffs and the alluvial plain, the depth and width of the detritus spread out over this plateau giving very nearly an accurate

measure of the amount of material thus brought down from the hills above; its average width is about three miles, but the thickness of the detritus varies greatly, as I shall presently show.

The most remarkable valley is that of the Waddy Houf, which forms a deep and magnificent gorge through the hills near the centre of the low anticlinal before mentioned, and making a fine curve round the most elevated portion of the range, debouches on the plain three or four miles S.S.E. of Helwan.

The Waddy Karafich, before noticed as forming the southern limit of the Helwan portion of the plateau, leads up into a shorter ravine which has been gradually cut backwards till it has broken through into the Waddy Houf at a point in the western wall of the aforesaid curve; a limit is thus set to its further extension eastward, though several tributary water-courses come in from the north-east.

The Waddy Nahkleh is also the continuation of another remarkable valley, descending from the higher platforms of the hills by a succession of steps or falls, which are of course converted into waterfalls after heavy rains.

Several other valleys likewise converge into the Waddy-el-Reshayid, which crosses the plain to the south of Helwan.

Passing now to a consideration of this plateau upon which the hill valleys open, and over which the transported material is spread out, it is important to note that the valley bottoms seem to be continued beyond the base of the cliffs and under the débris of the plain, and that bare rock sometimes lies close to the surface between the shallow waddies or along their sides.

Hence it is evident that the plateau is not altogether an encroachment on the alluvium of the Nile valley, though this probably is the case on its extreme outskirts. Quarries, however, have long been worked both at Toura and Helwan in solid limestone rock below the surface accumulations.

At Toura open sections showed 7 or 8 feet of angular débris and sand, underlaid by 3 or 4 feet of hardened mud, this latter resting on an uneven surface of limestone, which near the railway appeared to be only a foot or two above the level of high Nile, and sloped gradually up towards the cliffs.

Deep exposures are also afforded by the excavations which have been made to construct the railway embankment across the Waddy Karafich; one of these exhibited beds of clay, sand and pebbles, to a depth of 16 feet, without reaching the rock below. But in the railway cutting between this point and the Helwan station, the solid rock is shown in section emerging from under these deposits, and this is found to be part of a limestone ridge which projects out from the base of the cliffs,

and finally sinks westward under the *débris* of the plain; strata of clay and sand are seen to be banked up against it on the north, while southwards it slopes under beds of sand into the Waddy Nahkleh. I looked carefully for flint implements, but could discover none in these deposits.

Dr. Reil states that in the various wells and borings made hereabout the deposits were generally found to occur in the following order.

- | | |
|---|------------------|
| 1. Débris from the mountains with
beds of salt and gypsum .. | } 10 to 20 feet. |
| 2. Blue and yellow sands .. | |
| 3. Clayey sand and clay.. .. | |

Limestone again rises to the surface on the south bank of the Waddy Nahkleh, covered only by a few feet of angular *débris*.

From these facts it would appear that the channels in the rocky surface underlying the sandy plateau, are not parallel to the direction of the Nile valley, but run at right angles to this from the hills towards the river.

Consequently the plateau cannot be considered as a river terrace, to which at first sight it bears some resemblance, but must be looked upon as a *débris*-covered 'scar' from which the cliffs have receded; and it is clear that this recession of the Arabian chain has been brought about by the continued action of rain and rivulets, operating upon the cliff line originally produced by river erosion.

The actual extent of this projecting foot or scar I did not accurately determine, but its average width is probably not more than a mile or a mile and a half, the transported materials having been pushed out beyond it, so as to encroach upon and overlap the alluvial deposit of the Nile.

The width of rock exposed, would of course measure the recession of the cliff line, were it possible to fix the rate of retrogression, but it would be useless to attempt this, since the rainfall may have been much greater in past time than it is now. We can see, however, that the present face of the cliffs has hardly changed for the last 4,000 years; at some points there have been falls of rock, evidenced by the talus-slopes below, but these are not large, and in most places the same vertical cliff still stands which presented itself to the eyes of the ancient Egyptians: the scars left by the excision of their immense building stones are still plainly visible, and their very tool-marks are still fresh upon the surface of the rock.

The total amount of waste would not certainly average a foot along the whole line, and we may thus form some idea of the

enormous span of years which the width of the rocky scar presents to our imagination, even allowing for the possibility of more rapid erosion in past times.

PART II.—THE SURFACE AND ITS PRODUCTS.

THE surface of the plain is generally formed by the angular limestone débris before mentioned mixed with more or less sand, and drifts of blown sand are everywhere present.

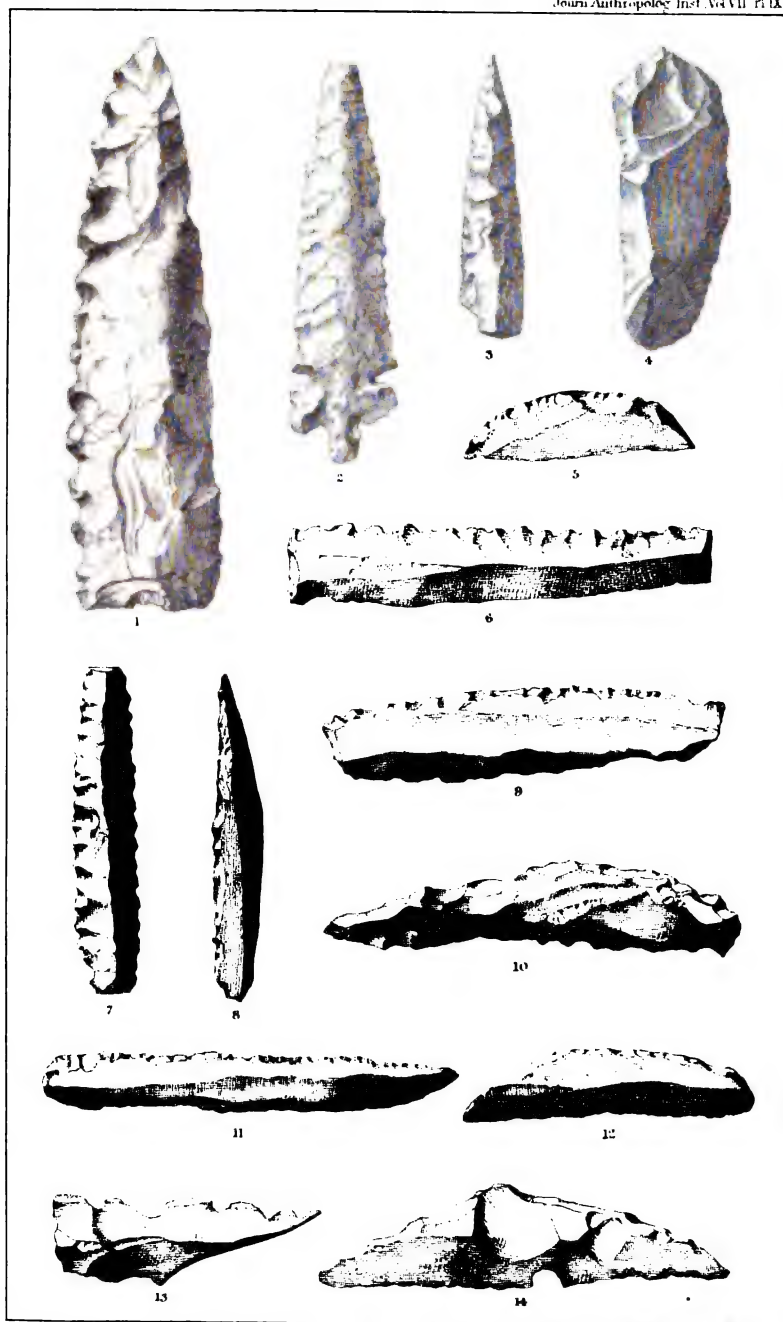
The immediate neighbourhood of the thermal springs, some dozen of which well up at different spots on the plateau, is always more or less raised in consequence of the blowing sand being arrested by the dampness and growth of herbage.

Excavations at the principal spring disclosed an ancient enclosure at a depth of 13 feet, which is believed to be the work of Abd-el-Aziz, and to have been made nearly 1,200 years ago; at these spots therefore the surface has been continually renewed by successive additions of sand.

At other places, however, the loose sand has been blown away by the wind, and a hard uneven surface exposed below, which is formed of sand compacted by the deposition of salts from the saline waters which here permeate the soil; such surfaces are not infrequent on the slopes in the vicinity of the springs and on the higher parts of the plateau, but always in places where, except for sand-drifts, the surface has probably remained unchanged for many hundreds or even thousands of years. It is chiefly at such spots that the flakes and flint implements have been found. Their occurrence was first noticed in 1872 by Dr. W. Reil, the director of the sanatorial establishment at Helwan; he informs me that he sent a short account of them to Professor Lepsius, who briefly mentioned the discovery at a meeting of the Ethnological Society of Berlin, but the notice itself was not published, neither have the flints been made known by any subsequent description. In the pamphlet previously quoted Dr. Reil just mentions "the numerous fragments of flint, worked by human hands, which are found lying on the sand near the springs;" some of these localities I had the advantage of visiting with Dr. Reil, and others I found during my stay at Helwan. Of the flakes and implements which I then obtained I now propose to give some description.

There are at least five localities near Helwan where such flints may be picked up in considerable abundance, and which have all the appearance of being the actual places where the weapons and instruments were manufactured.

All these are spots where the winds have blown away the



loose sand and exposed the old hard surface above mentioned, in the hollows of which the flint chips occur, as well as on the sand slopes below, whither they have been washed down by the rains.

The assemblage of implements found at one place is not the same as that found at another, each group containing some types that are absent from the others; I will therefore take the several localities in order and describe the forms occurring in each assemblage.

First Locality. This lies to the north, at a distance of about a mile from the hotel, on the southern bank of the Waddy Karafich, and only about 100 yards from the railway; here on the sandy slope of the valley-side there appears to have been a saw manufactory, small neatly-made flint saws lying about in considerable abundance, so that I quickly picked up fifteen or sixteen specimens when I first visited the place, which was I believe previously unknown to Dr. Reil. (*See Map, Pl. VII.*)

They appear to have been fashioned in the following way:—A good flake of even width having been chosen, the bulb of percussion and the narrower end were both struck off, so that the remainder might be of nearly equal thickness throughout, and the two ends were neatly squared and chamfered off. One of the sharp sides was then so nicked out as to leave a series of projecting teeth. In some cases the notches are very small and far apart, but more commonly they are set close together, the interspaces forming sharp teeth as in our steel saws (*see Pl. IX, fig. 6*), and sometimes they exhibit a graduated series from large to small teeth.

These saws vary in length from two to four inches, and signs of wear are plainly visible on some of the specimens; instances also are frequent in which both sides have been chipped into a saw edge, the teeth on one side being broken and polished if by long wear; hence we may infer that the instrument has been reversed and chipped up on the other side in order to fit it for use again.

These saws may have been mounted in wooden holders like those from Switzerland, but some of them which are neatly bevelled off along the back as well as at the two ends appear to be fitted for use without the interposition of a handle.*

One instrument of a very peculiar form was found at this locality (*fig. 14, Pl. IX*); in shape it is elongately triangular and is worked (or worn) along the back from the centre to the two points; the straight edge, though slightly broken by acci-

* Mr. Franks has since shown me some very similar saws from the neighbourhood of Bethsaur, and the Christy Collection possesses one from Sakkara, on the other side of Memphis, of the same type as the Helwan saws.

dental chippings, appears to have been originally entire; it may have been a kind of double scraper like that figured on p. 456 of Dr. Evans' "Stone Implements," but it also resembles in some respects the smaller implements (figs. 5 and 12) described on a subsequent page. Its extreme length is about 2 inches.

This same locality also yielded two broken but remarkable weapons, which are probably portions of arrow-heads; they belong, however, to different types, one having a triangular section, and worked on two faces by broad even flakings that produce slightly serrated edges; the tip is broken, but its original length would have been about 2 inches. (Pl. IX, fig. 7.)

The other is clearly the upper portion of a long arrow-head, and the flint is of a bright brown colour; it is somewhat flatter on one face than on the other, but both are beautifully worked, and the whole is brought to a fine sharp point. (Pl. IX, fig. 3.)

Besides these, two perfect lance-heads were found, each about 3 inches long and carefully worked all over; the best of these was picked up by Mr. George Walpole, and has been deposited by him in the Museum of the Royal Irish Academy; it is manufactured out of a curiously banded flint, and both edges are strongly and evenly serrated; that in my possession is not quite so elegantly shaped, and one side only is chipped to a serrated edge, the workman having been apparently unable to develop a similar serration on the other side, which only exhibits a wavy outline. (See Plate IX, fig. 1.)

All the above-mentioned weapons and implements were found within an area of 40 or 50 square yards, just below a sand-bank, on which the fabricators had probably taken up their station. On the pebbly plain beyond I also found a number of flakes and chips.

Second Locality. This is barely a quarter of a mile S.W. of the above, but is at a slightly higher level, in the neighbourhood of a well, called the *Beer-el-omar*. The sand here is saturated with salts, and is set into a hard hillocky surface, in the hollows of which there are many flakes and small implements.

I obtained several of the little pointed instruments which occur most abundantly at the locality to be next mentioned, and the description of which I will therefore leave for the present, only remarking that they present such small differences in length, form, and style of workmanship as suggest the hand of a distinct though equally skilled workman.

One instrument found here seems intended for use as a saw, but is of a somewhat different pattern to those first mentioned, the outline of the saw edge being slightly convex, and the other side being thick and roughly chipped; possibly, however, this side may have been originally nicked out into a coarser series of teeth, which have been broken down by use. (Pl. IX, fig. 9.)

At one spot in this vicinity I came upon a number of fragments of bone, which proved to be horses' teeth, split up into pieces of various sizes; among them were numerous spalls, flakes, and roughly worked scrapers, together with one worn or worked flake about two inches long. This association may only have been accidental, and the teeth may of course have been split by the heat of the sun, but there are three circumstances which give some colour to the idea that the teeth are of the same ancient date as the flints.

(1.) There were no other bones to be seen near the place, so that we must conclude that the teeth were brought without the rest of the skeleton.

(2.) I subsequently found small slips of the outer casing of such teeth among the flints at the first-mentioned locality.

(3.) The teeth have certainly been exposed for a long period of time, and the animal matter has been completely removed.

It is possible, therefore, that these horses' teeth were utilized in some way, either in the production of bone implements or in the manufacture of the flints; now I did not observe any implements made of the former substance, and the teeth in the original condition would hardly be chosen for this purpose, they being so hard that the flint knives and saws would have made little impression upon them.

On the other hand, it seems not improbable that the hard teeth may have been used in the production of the fine secondary working on some of the flint implements, for on trying the experiment with a piece of hard bone, I succeeded in producing a very similar bevelling, by pressing and working it against the edge of a flake. A similar result, as Dr. J. Evans has pointed out, is produced by scraping a flake along some hard substance, so that in many cases it is very difficult to decide whether this blunted edge is the result of use and wear, or of intentional working in the first instance.

The Third Locality is nearly a mile further to the southwest, and occupies the southern flank of a rounded mound-like spur in which the higher sandy plateau here terminates, and from which the ground slopes gradually down to the cultivated alluvial plain.

Here also there is a thermal spring, which has lately been enclosed and converted into a well; round this the flints were in especial profusion, and a score or so could be picked up in a few minutes, by far the commonest being the very small knives or scrapers figured in Pl. IX, figs. 5 and 12.

Two of these present a completely semicircular back, worked on both sides of the central ridge, and brought to a point at both ends, see Pl. IX, fig. 5.

All the rest are worked only on one side of the back, and the greater number are particularly knife-like in shape; they are made from small flakes, averaging $1\frac{1}{4}$ inch in length, one edge of which is left sharp and untouched, while the other is worked up into a rounded back by the fine chipping previously mentioned; one face is always flat, and the other more or less elevated according to the number of faces presented by the original flake, so that the section is generally flat, or flatly triangular; some of the larger specimens are $1\frac{1}{4}$ inch long, and exactly resemble the outline of the kind of knife known as a "Wharncliffe blade," but in others the curve is sharper and shorter; I may observe, also, that when the flakes are placed upon their lower or flat faces, the point lies sometimes on the right, and sometimes on the left side.

I am informed by Mr. Franks that these little instruments are extremely like the small flakes found in certain of the French and Belgian caves; these are described as "sharp knife-like flakes, trimmed to a narrow point at one end, from a shoulder about midway of the blade." Dr. Evans also figures some similar types from Kent's Cavern, and calls particular attention to them as not having been elsewhere noticed ("Stone Implements," p. 456-7).

Dr. Evans believes that the thick edge of these flakes has not been intentionally trimmed, but has been blunted by wear, that they were mounted in wooden handles, which protected the sharp edge, and that they were used as scrapers, and not as cutting instruments.

I find, however, that this view is not quite accepted by all archaeologists, and though it is with very great diffidence that I venture to differ from such an authority as Dr. Evans, I am encouraged to think that such flakes (at any rate the Egyptian types) may have been used for other purposes than scraping.

In the first place, I may refer to the doubly-pointed instrument (fig. 8) with a uniformly curved back, which is worked off on both sides, so that its edge is slightly wavy, as presenting a similar form of instrument, in which there can be little doubt of the back being produced by intentional trimming; in another of these semicircular instruments the chipping is almost entirely on one side, but in both of them the chipped facets make a more acute angle with the edge than is the case with most of the forms now under consideration.

Secondly, I may refer to the trimming on the backs and ends of the saws previously described as being of a similar character.

Thirdly, it appears to me that when a large number of the knife-like flakes are compared, their general form points rather to the use of the cutting edge than of the trimmed or blunted

back. Their most constant characteristics are the sharp edge and the pointed end, so that they seem peculiarly fitted for incising and cutting; the amount of the working along the back varies with the thickness of the flake, but the width of the instrument is apparently kept in proportion to its length; again, the curvature of the back does not seem a character that is likely to be produced by ordinary use as a scraper, and in some specimens the working is carried so far towards either end as to preclude the possibility of its being mounted lengthwise in the side of a stick when this edging was produced, and the same remark will of course apply to the more completely semicircular types. It is true that the blunted edge of the commoner forms makes a less acute angle with the plane of the flatter face, and thus presents some appearance of having been produced by the action of scraping, but if we assume that the cutting edge was intended to be used, they may have adopted this method as the easiest way of producing a blunted back.

I also obtained at this spot three flakes of a much thicker and stronger type, having an extreme thickness of about one-sixth of an inch along the back, which is slightly curved and rounded off at each end, thus presenting the appearance of having been intentionally worked. In two of them the straight inner edge is somewhat worn and broken, as if it might have been used for sawing; in the third this edge is minutely chipped as if it had been reset, or possibly had been used for scraping, but this like the other instruments seems fashioned with too much care to have been used for any ordinary rough work.

Another form of pointed tool likewise occurs which somewhat resembles fig. 228, in Evans' "Stone Implements," and may, like that, have been intended for a rimer or borer; these are made from stout triangular or quadrangular flakes, one edge of which is worked off, particularly towards one end, so that this is brought to a long narrow point, which has at the same time great strength and power of resistance on account of its triangular section.

The few specimens I found do not, however, show any traces of wear on alternate edges, as is the case with most boring tools, and they may only have been used as scrapers.

The truth is we can only speculate on the general uses to which these various small instruments may have been put, and I think we are at present entirely ignorant of the precise purposes for which they were really employed;—the existence of several different types among them, some thick and strong, others thin and delicately worked; some pointed and some rounded off at each end; the care bestowed upon such small pieces of flint and the accuracy with which each form is repro-

duced—all these facts lead one to believe that they were not all used for the same purposes. Again, from their occurrence in such numbers at one particular spot we may, I think, draw one of two inferences; either this is the place where the little instruments have themselves been fashioned, or else it is the site of a manufactory where they were used as tools in the preparation of some other materials. The occasional presence among them of the small cores from which they have been struck seems to render the surmise of their having been made upon the spot a fact beyond all reasonable doubt, and though it is of course possible that they may have been put into immediate requisition; still I have not been able to detect upon them any such signs of wear and polish as are visible upon the saws at the first locality, unless the minute chipping is of itself an evidence of their use for some particular purpose.

It is also worthy of remark that almost every flake has been ingeniously utilized in some way or other, so that it is the exception to find any piece of flint here which is entirely unworked; those which flaked off inconveniently and were not fitted for conversion into any definitely formed implement are always worked up at the bulb end, even outside spalls and slives of flint being treated in this way; sometimes the end is worked off triangularly, the point of the percussion bulb forming its apex on the under surface, as shown in Pl. IX, fig. 4. More usually, however, it is rounded off, and brought to a neat edge by a few short flakings. These chips and spalls are often of such irregular shapes that no other part of their circumference could apparently be utilized, so that it is difficult to understand the object of thus trimming up the bulb end.

The Fourth Locality is only a short distance south of the Helwan hotel, near the springs which issue at the head of the marshy or rushy ground in the vicinity. Here the wind has blown away the looser particles, and exposed the lower rugged surface of compacted saliferous sand.

Amongst the hollows are plenty of chips and portions of small trimmed flints like those just described, but specimens worked along the sides are not common; a very remarkable arrow-head, however, was picked up here during my stay at Helwan.* This weapon is figured at Pl. IX, fig. 2, and is seen to be of an elongately lanceolate form, about $2\frac{1}{2}$ inches long by $\frac{1}{2}$ inch at the base, from which it tapers towards the point; the extreme tip has been broken off, but it may be compared with the fragment from the first locality (fig. 3), which has a particularly sharp point; its thickness is not more than one-tenth of an inch, its

* This was found by Miss Whately's little protégé, Najeeb Mansoor Shakoore, who has entrusted it to me for presentation to the Christy Collection.

lower face is nearly flat, and its upper surface is finely worked all over, but the conformation of the broad end is its most remarkable feature, this is both notched and tanged; an indentation has been made on each side, and the base has been chipped out into a tang, so that two lateral wings are left, and there are practically four notches, by means of which the head could be very securely bound on to the shaft.

The Fifth, and last, Locality which I visited lies about a mile and a half further on, in the same direction, near a sulphur spring overlooking the Waddy-el-Reshayid. Before reaching the spring, I came upon a spot where numerous flakes and cores were scattered about, the former being chiefly remarkable for their greater size. Very few bore any traces of secondary working, except at the bulb end, and at first sight they appeared to be the result of a ruder state of manufacture, or the work of unpractised hands; it is more probable, however, that this might have been simply a flaking station, whence the better flakes were passed on to be used elsewhere, or to be finished by a different set of workers. It is at any rate a fact that a little further on beautiful flakes occur in some abundance, which bear evident signs of wear or working; these are strewn over the surface of a sandy plain bordering the shallow valley, and lying between the spring and three palm-trees which form a conspicuous landmark.

I think it is probable that the flints occurring on this plain have been washed down by the rains from the neighbourhood of the springs, where their makers would most likely have stationed themselves; it is true that none are now to be seen near the springs, but they would necessarily have been covered up by the mounds of sand which have since accumulated. Dr. Reil informed me that flakes were found in clearing out some of the other springs, where similar accumulations have taken place.

The most noticeable specimens of flint work found at this locality are certain long, thin, and narrow flakes, which have greatly the appearance of being intended for knives. Their shape, however, is quite different from that of the little knife-like flakes previously described, and there is an entire absence of the characters which induce me to doubt whether those instruments were used as mere scrapers. In the flakes now under consideration, the blunted portion has much more the appearance of being the result of wear, and might very well have been produced if the flake had been mounted as Mr. Evans suggests; for the chipped side is approximately straight, and is not worked to a point; on the contrary, when this side happens to slope towards the thin end, the chipping ceases exactly where it would if caused by scraping a nearly level surface. (Pl. IX, fig. 11.)

Again, many unused flakes were found together with those presenting signs of wear; and on the slopes below the spring, many thicker flakes, nearly 3 inches long, were found, most of which were unworked, except at the bulb end, but a few of them were worn down along one side, while the sharper edge was ragged and irregular. Here also many of the broader and thicker flakes were roughly worked all round, and one of these appears to have been a drill or borer; it is a flake of some thickness, and about 2 inches long, brought to a rude point at one end, which bears signs of wear upon alternate edges. (Pl. IX, fig. 10.)

Some of the other flakes are lanceolate or leaf-shaped, but are only chipped up at the bulb end; thus again we find that almost all the fragments bear evidence of having been prepared for some use or other.

CONCLUDING REMARKS.

Two things will immediately strike any one who is looking over a collection of Helwan flints: firstly, the small size of the implements; secondly, the absence of any adze or celt-like forms.

Still, we can hardly suppose that people capable of making such saws, knives, and arrow-heads could have been entirely without such weapons as hammers or chisels, and their absence is probably only indicative of the truth of the theory already advanced, that Helwan was a manufactory of small implements only. It is moreover a fact that flint tools of much larger size have been found in other parts of Egypt; and though these are unaccompanied by any such small forms as have been described, it is quite possible they may be of much the same age.

There are, indeed, in England, similar manufactories of small weapons, where only cores, flakes, arrow-heads, and scrapers occur; three remarkable instances of such stations have lately come under my notice, one being near Brandon in Suffolk (discovered by Mr. S. B. J. Skertchly), a second in Oxfordshire (by Capt. Dillon), another near West Keal, in Lincolnshire.

In approaching the difficult problem of estimating the probable age of these Helwan implements, I may remark, *in limine*, that their occurrence on the surface does not militate against their being assigned to a remote date, as it would in this country, because the particular surface on which they are found has probably remained nearly unchanged for several thousand years.

Where accumulation is known to have gone on, as in the immediate vicinity of the sulphur springs, they are found buried at a greater or less depth, while in the shallow valleys and watercourses, where there has been recent inundation, they do not occur at all.

As Mariette Bey remarks, in his "Notice des principaux Monuments dans le Musée à Boulak," "The question of the Stone Age in Egypt has not yet been solved; the flints bear evident traces of the work of man, but one cannot conclude, as has often been done, that they belong to the very remote period which has been designated by the rather vague name of the *Prehistoric*. Almost all the flints have been collected on the surface of the soil, and there is therefore no evidence to prove the date of their manufacture. They may, indeed, even at the most flourishing epoch of Egyptian civilization, have used flints as tips for their arrows, or as knives for the incision of mummies, and it is not even impossible that some of them are as late as the Arabian era."

He proceeds to state that some flint implements have been found in the tombs, "particularly in those of the Greek period." Some of these being placed in the Boulak Museum I was able to see them, and found them to be of very different types from the Helwan flints; among them are two thin polished celt-like weapons, each about 4 inches long, having a chisel edge and coming to a point at the other end. A beautifully worked arrow-head of the broad shield-shaped type. Likewise four or five ordinary flakes that might have been struck at any time; and three pierced stones, irregular in shape, but smooth and almost polished. With them were also several yellow cowries, one or two small *Neritæ*, and what appeared to be imitations of the cowries in bronze. Altogether the assemblage has rather the appearance of being a set of curiosities placed among other valuables in the tombs, or perhaps deposited there in deference to ancient customs, and cannot be taken as evidence that such weapons were in use at that time.

No knives, saws, or scrapers were among them, and they cannot therefore be compared with the Helwan flints; but the different shape of the arrow-head may be remarked, and the smooth celts may perhaps be taken to indicate a more recent age than the chipped tools of Helwan.

The museum, however, also contains a collection of rude weapons from the Bab-el-Moulouk (Thebes), which have a much more ancient appearance. In size, form, and workmanship these Theban flints are comparable to our palæolithic type; they have been described and figured in a paper communicated to the Institute by Sir John Lubbock,* in which he combats the views expressed by Professor Lepsius regarding their origin and age. Dr. Lepsius was then sceptical as to the signs of human workmanship presented by these flints, and one of his difficulties was

* Journ. Anthropol. Inst., vol. iv, p. 215.

the fact that no better-worked specimens had been found in similar situations in Egypt; now Helwan bears much the same relations to the Nile valley as the borders of the Bab-el-Moulouk and the other localities where such flints have been detached. Sir J. Lubbock says, "I found them on the slopes of the hills and on the lower plateaus above the level of the inundation wherever flint was abundant and of good quality."

The occurrence, therefore, of such finely-worked flint implements on the Helwan plateau ought to remove from Professor Lepsius' mind all doubts regarding the human origin of the larger and ruder forms.*

From a mere comparison of the three series in the Boulak Museum, one might be inclined to look upon the Helwan flints as of intermediate age between the primitive Theban implements and those of the Ptolemaic tombs, but a comparison of the workmanship of different kinds of tools is no very sure guide, and it is quite possible that the Theban and Helwan implements may be very nearly of the same date.

The occurrence of flint tools and weapons within the valley of the Nile, and in such near proximity to the three most ancient and important cities of Egypt (This, Memphis and Thebes), points clearly to one of two conclusions: either they were used for certain purposes by the ancient Egyptians themselves, or they were fashioned by still earlier inhabitants of the Nile valley. Sir J. Lubbock inclines to the latter opinion, but I cannot help thinking that there are many circumstances which tend to support the other view. We know that the Egyptians did use flint for many purposes; arrows have been found in the tombs, with flint tips of a peculiar form.† Broad-bladed knives with thick backs also exist in several collections of Egyptian antiquities, and these have been supposed to be the "Ethiopian stones" which Herodotus speaks of as being used to make the first incision in embalming mummies; some of these have been figured by Lepsius,‡ and two of them are reproduced in Wilkinson's "Ancient Egyptians,"§ the smaller of these, which was found at Memphis, bears great resemblance to the small knife-like implements occurring at Helwan, and lends colour to the view that these were intended for the purposes of incising or cutting

Lepsius found a number of flakes in a tomb, to which he has

* I am informed by Mr. George Walpole, who has lately revisited Egypt, that extensive discoveries of flint implements have recently been made by Prof. Haynes of Boston, U.S., both near Cairo and in the vicinity of Thebes. At some of the *ateliers* small flints of the Helwan type are found, while at others the tools are larger and rougher, bearing more resemblance to our Palæolithic types.

† Evans' "Stone Implements," p. 329.

‡ Zeitschrift für Egypt. Sprache, &c., 1870.

§ Wilkinson's Popular Account of. Vol. ii, p. 164.

reason to assign a date of about 2500 B.C. We know also that the Egyptians practised the rite of circumcision, for which knives of flint were employed at a very early date.*

Again, if anything may be safely founded upon the facts previously noted, regarding the association of horses' teeth with the implements, it would tend to bring the limit of their age within some 3,500 years, for it is said that the horse is not represented on any Egyptian monuments erected before the 18th Dynasty, the date of which is given as either 1500 or 1700 B.C., and it is concluded that the animal was not known in the country before that time.

Moreover the workmanship of the implements themselves, the development of the arrow and spear heads, the carefulness bestowed upon the saws and knives, would seem to indicate great perfection in the art of flint manufacture, such as might have accompanied the comparatively advanced stage of civilization to which the Egyptians had attained at the period alluded to.

While, therefore, it is possible that the Helwan flints may belong to a very remote age, yet there are many considerations which incline us to assign them to a period which is hardly prehistoric, so far as Egypt is concerned.

DISCUSSION.

Mr. LEWIS reminded the Meeting that the use of stone implements in the desert adjoining the country under discussion was mentioned in Exodus iv, 25, and Joshua v, 2. These notices might be taken into account in considering the age of the specimens exhibited.

The PRESIDENT expressed his satisfaction at seeing so large a collection of the smaller varieties of flint instruments found in Egypt. Although there might be a difference observable in those found in different localities, he did not think that there were manufactories of different kinds of instruments at the various places, but rather different kinds of manufactures of some other nature, for which different implements were used. The instruments found were not new and unused, but most of them showed more or less evident marks of wear. The saws, for instance, were polished by use, and where the teeth had been broken off there had been in some cases new teeth formed at what had been the back of the saw. The minute chipping along the edges of some of the instruments probably arose from their having been used to scrape some hard substance, such as bone. In this respect they closely resembled some of the small instruments from the caves of the Dordogne, the sharp edges of which had probably been let into wooden handles, while the outer edge was used for working bone, and was thus worn away. The triangular implement bore much analogy with one from Kent's Cavern, and with what the Italian archaeologists have termed the "rhomboidal flints." The arrow-head with the

* Exodus iv, 25, and Joshua v, 2.

notches at the base was of a form he had not before seen from Egypt, and the same might be said of the lance-head. The peculiar chisel-ended form of arrow-head which had been found in Egyptian tombs appeared to be absent in the series exhibited. The absence of the larger forms of instruments might be accidental. When flint is scarce, the largest pieces are those which in course of time get appropriated for fire-producing purposes, while the smaller forms are left. He inquired whether any fragments of bone had been found with the flints, as it seemed probable that many of them had been used for working in bone; and he suggested the possibility of the laminæ of horses' teeth, which had been described, having been wrought into beads or ornaments. He also inquired as to the source of the flint, and its geological age. As to the instruments themselves, they appeared to be neolithic and not palæolithic, though it was difficult to assign any definite date to them. Although many roughly-chipped implements had been found in Egypt, he had as yet seen nothing, which, either from the circumstances of its finding, or its own character, could be confidently pronounced to be of the palæolithic age.

In replying, the AUTHOR pointed out the position of the localities on the diagram he had prepared. In answer to Mr. Moggridge, he stated that the temperature of the sulphur springs was considerable, he thought over 100° F., but could not recollect exactly. He thanked the President for his suggestions, and remarked that the teeth were curiously placed in connection with the implements; they were broken up into long pieces, and one of the knives was lying among them, that it looked as if the knife had been used in splitting them up.

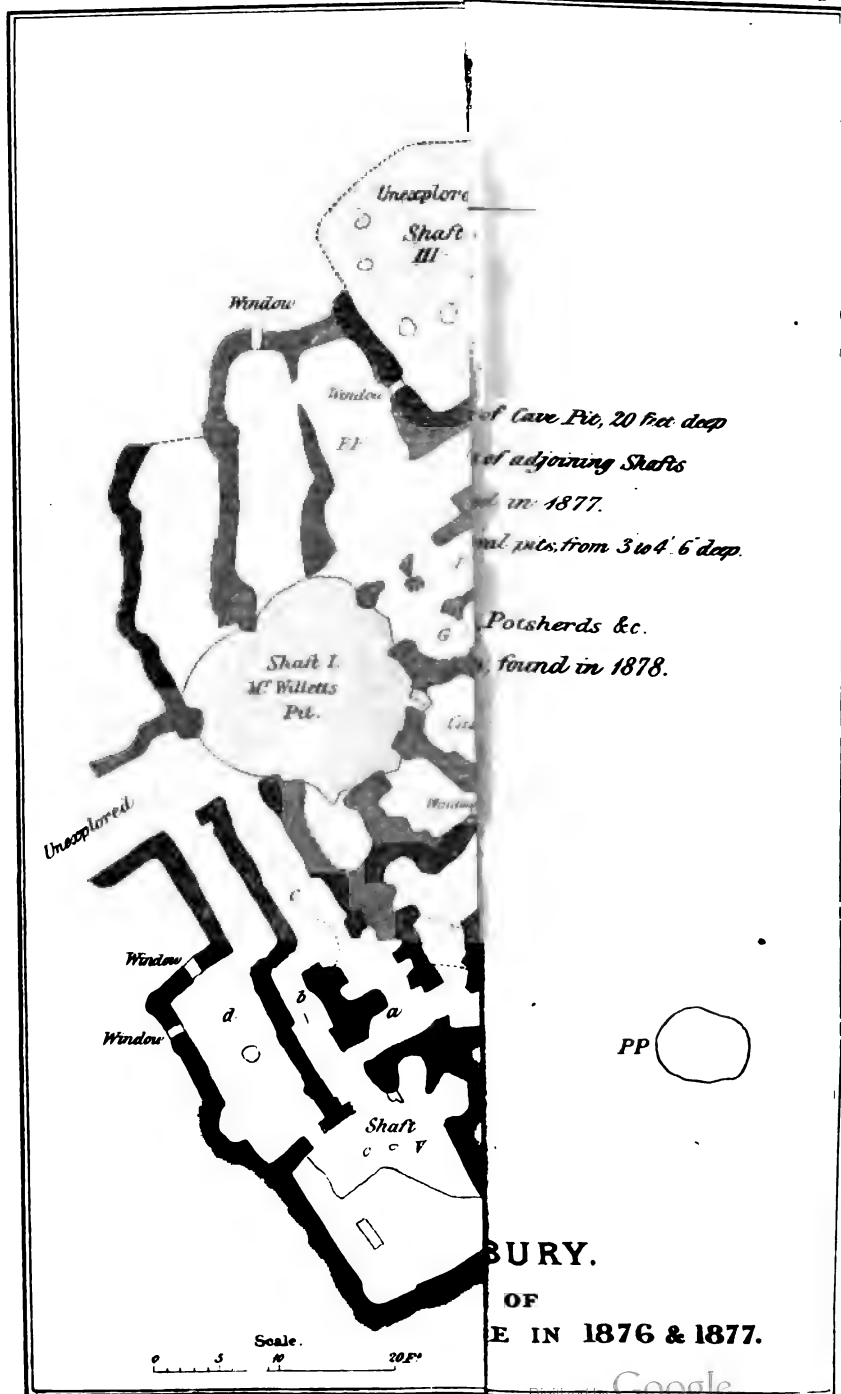
With regard to some of the smaller instruments, it had been suggested to him that they might have been used for straightening the shafts of arrows. He drew attention to a small collection of implements he had found in Lincolnshire, on the borders of the Fens—the place appeared to have been a station or manufactory similar to those at Helwan, and the association of flints was somewhat similar; there were many small flakes and chipped instruments, but no adzes or anything larger than a scraper or "strike-a-light."

The flints used in the manufacture of the Egyptian implements, were pebbles found on the lower plateau, which had been washed down from the hills of Eocene limestone above, the upper beds of which abound in siliceous concretions of various sizes.

The following paper was read by the Author:—

ADDITIONAL DISCOVERIES AT CISSBURY. By J. PARK
HARRISON, M.A.

THE exploration of the galleries of the "Cave Pit," which was commenced late in the autumn of 1876, has at length been completed, and it has resulted in discoveries of considerable interest.



BURY.

**OF
IN 1876 & 1877.**

The primary object of the excavations at Cissbury, as shown by Mr. Ernest Willett in 1874, was the acquisition of a description of flint, which is not met with near the surface of a quality or in a condition of softness suited for the fabrication of weapons and tools agricultural or others.* This had been previously demonstrated by Canon Greenwell to have been the case at "Grime's Graves," in Norfolk; and in the opinion of the above named archæologists mining operations must have been carried on for a very long series of years at both places.†

Several questions remained for solution, and it was hoped that some of them might receive elucidation from further research. Amongst others, the relative dates of the excavations, and the period during which some at least of the galleries may have continued open, and so have been available for shelter and refuge.

Before going into details, which will be necessary, even if tedious, in order to see what features in the galleries throw light on the above points, I will recapitulate the description of the cave-dwelling, or chalk hut, which gives its designation to the "Cave Pit," and affords the only instance of occupation that has as yet been met with on the floor of any of the shafts.

When perfect, this cave would have had much the appearance of a large baking-oven, such as one often sees in farm-houses. It was excavated beneath a buttress of solid rock, which projected about seven feet into the shaft on its west side. The chalk roof had partly fallen in, but part remained attached to the side of the shaft when first discovered. It gave way whilst the workmen were clearing out the interior, and Guiles the foreman narrowly escaped injury from the fall of the chalk, which moreover broke down part of the south wall some three feet long.‡ Over the roof, as it originally existed, there was a layer of fine white concrete, which sloped down at an angle of about 45°, and protected the hut from wet and observation, besides affording means of access to the bottom of the shaft. An entrance which once existed on the eastside was filled up with chalk blocks, neatly fitted together, so as to form a dry wall. And against this, on the exterior, there was a fireplace, the first that had been noticed at the bottom of a shaft, though charcoal had been met with half-way down in the filling in of several pits, indicating by this and other signs that they had been used for shelter. *A smaller entrance had been pierced in the south corner of the hut.*

* Mr. Willett thinks it probable that they were used for shelter afterwards.

† General A. Lane Fox was the first who discovered that Cissbury was a great flint factory. This was before any shafts had been cleared out.

‡ A quantity of rubble was stacked round the walls to preserve them during the winter, with partial success. They had previously been carefully examined by Prof. R. Jones and other geologists.

The fire at the bottom of the Cave Pit had been made on a floor of fine chalk silting about 4 inches thick, washed down apparently from the layer over the roof of the cave; and the charcoal from the fire as it accumulated would appear to have been thrown upwards,—a considerable quantity being incorporated with the fine concrete, to a depth of about five inches, over the greater part of its extent.*

Both in size and plan the small shafts and rude galleries which were explored by General Lane Fox, in 1875, in the ditch of the camp, differed from those which have been opened inside the ramparts. So much was this the case that it can scarcely be doubted that the former are by far the oldest, and the homogeneous character of the "filling in," in the group of shafts communicating with the first "Skeleton Pit," showed conclusively that the large angular blocks which they contained were introduced at one time and had not been exposed to atmospheric influence.

In the case of the Cave Pit, however, there was every appearance of the shaft having gradually filled in after it had been abandoned;† and the walls bore marks of weathering. The filling in also was such as might have occurred from periodic falls of chalk—principally from the upper portion of the north and east sides, which would have been most exposed to the effects of frost and rain. Blocks do not appear to have been thrown in previously to the formation of the red seam, which crossed the pit from east to west.

Such, in brief, is the evidence of the Cave Pit itself. We now come to the proof of continued occupation that is afforded by the exploration of the galleries which has been carried on during the year 1877.

Besides several doorways or openings in the walls which were found to be filled with chalk artificially fitted together, barriers were met with in four or five different places. Thus, in gallery A, the rubble was packed so close to the roof, for a space of about five feet, that on a superficial examination in 1876 we were under the impression that there was nothing beyond it. Mr. R. B. Martin, however, who assisted in the exploration in the early part of last summer, with some difficulty (owing to the way in which the rubble was cemented together with stalagmite) formed a passage through the barrier into a cave immediately behind it which was nearly free from chalk rubbish; and then passing through a narrow opening which led into the cross-gallery *a*, met with little obstruction to his progress along it

* This account was given in substance in the Report on the "Cave Pit" last year.

† It was so also with the filling in of Mr. Willett's pit.

and gallery *b*, at the end of which, on the north side, he found an opening into a third gallery *c*, communicating with Mr. Willett's pit. In the other direction, gallery *b* was found to lead to a shaft (V) afterwards opened. Chalk rubble had been placed by the occupants against the sides of these galleries, where it was left by us intact, to show the original condition of the passages; but it was subsequently removed in places by visitors.*

Gallery B, which was much blocked, proved to be less extensive than we imagined in 1876, before the rubble was moved. In fact it was found to be a triple cave rather than a gallery, with a centre cell barely 1 foot 6 inches in height. In the south wall of the cell, about half-way across it, and in the same stratum with the flints, I found a mass of iron pyrites weighing $1\frac{1}{4}$ lb., of a singular form, like some distorted reptile. It projected beyond the face of the wall, and was perfectly loose in its bed, where it was retained solely by its gravity. Twelve flints, the majority showing clean fractures, remained in situ along the line of formation on either side.

It was, over the entrance to gallery B that the three horizontal lines were found of which mention was made in the Report on the Cave Pit, last year. They were simply straight lines, parallel to each other and of different lengths. Some other marks have since been discovered on the west jamb of the entrance. And on examining more closely the deep cuts on a detached block of chalk, noticed last year inside gallery B, I find that they were made *over* and parallel with earlier marks. As the shape of this block was thought to bear some remote resemblance to a rude human figure, it has been carefully removed, and is now in charge of Mr. Ballard at Broadwater.†

In gallery C, the total length of which from east to west was by measurement 26 feet, we found three caves, all on its south side. The gallery was much blocked in the centre, having been packed with rubble almost to the roof. In the furthest cave, or recess (at the east end), however, there was a clear space next the south wall, which would have served as a place of concealment. Behind a heap of rubble, on the south side, we found a

* Since this paper was read another entrance to gallery *c* has been found on the north side of gallery *a*. It is shown on the plan.

† Part of the chalk wall on which the lines were traced having been broken off by some person, and the remainder hacked over as if an attempt had been made to imitate the diagonal lines originally scored across some marks over gallery C (see Journ. Anthrop. Instit., vol. vi, p. 7), I cut out the piece of chalk to prevent antiquaries being misled by the fabrication. As it is intended to enter fully into the question of Marks on a future occasion, I will merely mention that Prof. Rupert Jones, F.R.S., has carefully examined the lines over galleries B and C, and thinks that no doubt can be entertained as to the antiquity of both sets.

window looking into gallery D, and at the east end there was a doorway or entrance to a gallery running nearly north and south; it appeared to belong to shaft IV.* And at its east end I ascertained with some difficulty (owing to the insecure state of the roof) that an opening existed in the south wall, two feet from the end, through which blocks of chalk and rubble could be seen above the ordinary level of gallery roofs. This indicated the existence of another shaft, or a chamber with a loftier roof than that of the gallery from which it was approached. It was impossible to remove a sufficient quantity of the débris to ascertain which of the two suppositions was correct, the workmen objecting to enter this gallery for the purpose of handing out the chalk. A horn pick, found at its southern extremity, was the second implement of the kind that we recovered during the exploration.

Gallery D was found to be divided into two chambers, the outer one running nearly east and west, and the inner one north and south. The ground plan, it will be noticed, fits with remarkable exactness into that of the adjoining galleries; and at the east end there is a wide opening into shaft IV.

In the north wall of the outer chamber an interesting feature presented itself, which we had not before met with. On clearing away the chalk rubble from the sides of the gallery, a heavy block, 2 feet 10 inches long by 1 foot 3 inches wide, was found wedged against two square blocks of chalk tightly fitted into an opening communicating with gallery E. They had evidently been placed in the position where they were found, to prevent access from that quarter, and they would appear to have been introduced some considerable time after the galleries were excavated, the jambs of the opening being thickly coated with stalagmitic incrustation, whilst the blocks themselves remained much in their normal state. Large blocks of chalk, of which there were many in all the galleries, would also no doubt have been placed when requisite at the entrances from the shafts; and in case of emergency the occupants of the galleries could have retreated behind other barriers of a similar kind, or have made their escape by one of the outlets in the walls.† Though nothing was found in the galleries to indicate that they

* There was also a small opening from the N. E. corner of gallery C into shaft IV.

† Tacitus mentions that underground places were used for shelter in Germany. His words are as follows:—"Solent et subterraneos specus aperire, eosque multo insuper limo onerant, suffugium hiemi, et receptaculum frugibus: quia rigorum frigorum ejusmodi locis moliant, et siquando hostis advenit, aperta populatur, *addita autem et defossa* aut ignorantur aut eo ipso fallunt, quod quaerenda sunt."—Tac. Germ. Cap. XVI. Mr. Godwin Austen believes that the galleries at Cissbury were used for similar purposes.—Journ. Anthropol. Instit. vol. v, p. 388.

were used as permanent habitations, the jambs of several of the entrances were rubbed and rounded. This was especially so in the case of the entrances to galleries A and C, and the doorway at the end of gallery A.*

A fine hammer of deer's-horn with a portion of the skull attached to it (showing that it had not been shed like the great majority of the horns recovered at Cissbury and Brandon), was found over the entrance in the filling in of shaft IV. It is now in the museum of Major Wisden.

A tunnel having been made along the west wall of this shaft in order to ascertain if there was any gallery from it running north, we were fortunate enough to discover one; but the roof near its entrance having fallen in, and the space for work being very cramped, all that could be done was to ascertain its existence and bearings.

Gallery E, which consists of three branches, the principal one running in a north-easterly direction, was partly cleared out in 1876. The roof of the main gallery, to about eight feet from the end (as mentioned in the Report last year) showed signs of having been subsequently heightened. It had been at first imagined that 1 foot 4 inches, the height of the lower portion of the gallery, was scarcely sufficient to allow of the extraction of flints; but upon clearing out the chalk débris, this was not found to have been so. Flints had evidently been obtained from this part of the gallery; and the height, it was subsequently ascertained, exceeded that of the centre cave in gallery B, and the antechamber at F. There would seem to have been no reasonable cause for subsequently increasing the height, excepting it were for the purpose of rendering the gallery more commodious for temporary occupation; and the abrupt change to a lower level of roof would have made it difficult to follow a refugee, and also have hindered a pursuer from using his flint weapons.

On clearing away the débris at the end of the main gallery a spacious chamber was reached. It measured 13 feet by 10 feet, exclusive of a bay at the east end, and a wide passage leading to a shaft (No. III) at its other, or western, extremity. The roof remained almost perfect, notwithstanding its span, only a small piece (about three feet square) having scaled off near the centre. Chalk rubble had been stacked against the entrance from gallery E, and the block extended nearly half across the chamber. The remaining space was quite free from chalk and available for

* Prof. Rupert Jones, who spent two days at Cissbury last summer, has reminded me, since this paper was read, that I showed him a slab of soft chalk from the floor near the entrance to gallery *a*, which had the impression of short hair on it, such as might have been due to its having been in contact with deer's skin.

shelter. No remains of any description were found, though the whole of the chalk was shifted to see if there was anything beneath it. Singularly enough, as many as three bladebones of small ox, or deer, were discovered in the main gallery E, and its left branch;* whilst nothing but two small bones of sheep or goat was noticed in any of the other galleries.

On the north side of the left branch there was a window communicating with gallery F, and at the end a small doorway opened into another gallery, E, belonging to shaft III. On its north wall, near the entrance from the shaft, were two groups of dots, six in each group, and several straight lines made with a tine of deer horn, or some other obtusely pointed instrument. The entrance to this gallery was effected immediately on its discovery, and the chalk blocks which closed the entrance were removed by myself.

The entrance to the antechamber F from gallery E appeared to have been purposely barred with blocks of chalk which had become cemented together by stalagmite. It was only 1 ft. 3 ins. high, and the roof of the antechamber was equally low. As mentioned in the report on the Cave Pit, the entrance from the shaft at F also had been stopped by large blocks closely fitted together. Possibly the miners may have broken through from the adjoining pit to F, and so access from that quarter had to be cut off.

In the long gallery, F F, which runs north from the antechamber, and probably belonged to the Cave Pit,† a small window was discovered behind a quantity of chalk rubble, on the east side. This, it was subsequently found, looked into shaft III; and a gallery much blocked, and rendered almost impassable with sharp stalagmitic incrustation, ran in an easterly direction along one side of the shaft. It was stopped by the cross gallery c, which contained the marks above alluded to. On its south side there was the window which, as has already been said, had been discovered in the west wall of the branch gallery E.

The only feature in the plan of the Cave Pit that remains to be described is the small chamber or cave G, in the north-west corner of the shaft. It occupies the space between the chalk hut and the entrance of the antechamber F, and runs back some six feet into the rock at that corner of the shaft. Owing to the rotten condition of the roof, this cave has not been thoroughly explored. Like the cave hut, it was perhaps broken into from the adjoining shaft I, which there is reason to believe was excavated some considerable time after the Cave Pit.

* And a metacarpal of ox. Two flint implements were recovered from this gallery in 1876.

† It was cleared out by Mr. E. Willett in 1874.

On reviewing the plan of the galleries, two main points force themselves on our attention. First, the economy of space exhibited in the excavations; and, secondly, the remarkable way in which the adjoining shafts and galleries interlace. If the plan of the pits in the ditch of the camp* is referred to, it will be seen how much space was there wasted, the shafts also being little more than half the size of those now under consideration; and, so far as the galleries are concerned, the criticism is also applicable to "Grime's Graves" in Norfolk.

In the case of the plan of the Cave Pit and the surrounding excavations (regard being had to the distinction between *original* entrances to galleries, and the smaller openings subsequently broken through the walls), there is little difficulty in tracing the sequence of the shafts. Thus, a careful examination will show in how many instances the galleries appear to have stopped short on approaching excavations which cross their way, and it may be therefore assumed were previously in existence. Galleries F, f, and the left branch of E, for example, would seem to have been adapted to shaft III, and its gallery e. And in a similar way, a short gallery belonging to Mr. Willett's pit is stopped by gallery A. Shaft I would therefore seem to be of later date than the Cave Pit, and the latter later than shaft III. Shaft IV appears to be older than shaft III, whilst shaft V may have been the latest excavated; and it is worth noting that the miners economised labour in following the planes of cleavage of the chalk rock in the two galleries belonging to it.

South of galleries A, B, and C, it will be seen that there is an absence of long galleries, and indeed of any galleries properly so called. In their place there is a series of caves, thus leaving a considerable extent of chalk rock to all appearance unexcavated. As, however, it was possible that galleries might run eastwards from shaft V, in some tortuous course, or again westwards from the shaft which it was suspected might adjoin gallery C, to ascertain this, though the small balance received from the Exploration Fund of 1875 had been long exhausted, and the season was getting late, it seemed of much importance that the plan should, if possible, be completed, and the blank space accounted for. I decided therefore on continuing the work, a sum which would pay about half the cost of clearing out shaft V having been promised by a relative.

We commenced work on this new shaft on the 18th of September. A slight depression in the turf indicated its position, but the site of its north wall was more precisely ascertained by calculation from the plan of the galleries of the Cave Pit. On

* Journ. Anthropol. Instit. vol. v, plate XV.

removing the turf, several rude implements were found at a depth of from 6 to 12 inches, as well as several sherds of pottery, mostly black, and of coarse texture; one fragment of red ware, however, had evidently been turned on a wheel. It was lying in close proximity to a flint celt, and six or seven throw-stones of worked flint, all of which were met with in a space of about four square feet. A fragment of red pottery $1\frac{1}{4}$ inch thick, a piece of sandstone much rubbed and rounded, and a few bones of some small ruminant, were the only other remains that were found within 18 inches of the surface.

The usual red seam, due to the silting in of the clay which covers the chalk formation at Cissbury to a depth of 7 or 8 inches, appeared to have entered the shaft at the N.W. and S.E. corners. Over it there was a quantity of grey-coloured chalk, which sloped down from the N. and S. sides, forming a shallow valley in the centre of the shaft, which had been subsequently filled with white chalk, derived perhaps from a neighbouring pit. The grey chalk had all the appearance of having been exposed to the light; and some thirty or more of the blocks bore marks of various kinds. They were observed on the grey chalk only, and like those discovered in the adjoining shaft (II) in 1876, appeared to be some of them natural, i.e., the work of an unknown insect or worm, whilst others were evidently made by man.

One or two small bones were found at a depth of 4 feet, but nothing else, excepting an antler with three tines, in good preservation, until we reached the 8-foot level. Here the red seam from the south-east corner of the shaft divided into two branches, one extending nearly across the shaft and forming with the seam from the north-west a shallow basin; the other continuing its course at a sharp angle towards the bottom of the shaft.

Rudely made implements were met with at a depth of from 8 to 10 feet, and associated with them there was a scapula of deer or small ox. At this level we found two caves in the west wall of the shaft, 3 ft. by 3 ft. They appeared to have been excavated for the purpose of extracting an inferior description of flints, at a time when the pit had become half filled with rubbish from the upper part of the walls, and silt from the surface, owing to excessive rain. Quite a heap of flint chippings and flakes were noticed in the red seam about two yards from the west wall, and many broken and spoilt flints were collected at the same spot. An attempt had evidently been made to form implements from imperfect flints, at a time, perhaps, when deep excavations had been discontinued.

At 15 feet, a quantity of charcoal was observed near the centre of the shaft, and some imperfectly burnt wood; also

several pieces of chalk much smoked and calcined. The chalk rubble beneath was cemented together in a way that was not observed in the case of the filling-in round it, which readily separated from the centre mass. At the north corner of the shaft, about 20 feet from the surface, we uncovered the entrance to a gallery, which proved to be the one which communicated with gallery A (p. 414), and immediately adjoining, on the east side of the new shaft, there was a double cave which, on being cleared out, was found to run about five feet in the direction of the apparently unoccupied ground.

Continuing the excavation across the shaft, we next uncovered the entrance to a second gallery in the north wall, three feet from the corner. It was comparatively free from rubble, excepting at the sides, but a good deal of small chalk covered the rock floor, so that it was not easy to move about, notwithstanding the width of the chamber, seven feet from wall to wall. At the west end, there was a small window which looked into a gallery, running southwards, belonging to another shaft.* In the north corner of the wide chamber, near the west end, a narrow doorway opened into a gallery which appeared to communicate with Mr. Willett's pit; it ran parallel to gallery *c*, which was entered, as has already been mentioned, from gallery A. The roof at the end of the gallery had fallen in, and we were not able to penetrate further in that direction. Nearly in the centre of *d*, a quantity of charcoal had been deposited on the fine chalk débris, which covered the floor, and mixed with it there were pieces of calcined chalk, which had the same appearance as the rubble beneath the site of the fire in the shaft. As there was no smoke on the roof of the chamber, or marks of burning on the floor, it seemed probable that the charcoal had been introduced for some purpose from the fire in the adjoining shaft.

On proceeding with the excavation, it was found that a part of the chalk rock had been left as a bench, or platform, 3 feet wide and 1 foot 3 inches high along the west side of this shaft, returning towards its centre at an obtuse angle, and then retiring towards the south-east corner, where there were two rock steps. On the main platform, near the west side, a single block of chalk had been left standing on its natural bed, in a perfectly isolated position. It measured 2 feet 5 inches in length by 1 foot 6 inches in height. A narrow passage ran between it and the west side of the shaft, and some loose blocks of chalk, roughly fitted together, formed a wide wall, which extended from the piece of rock some six feet across the

* There was a second window in the wide chamber on its south side.

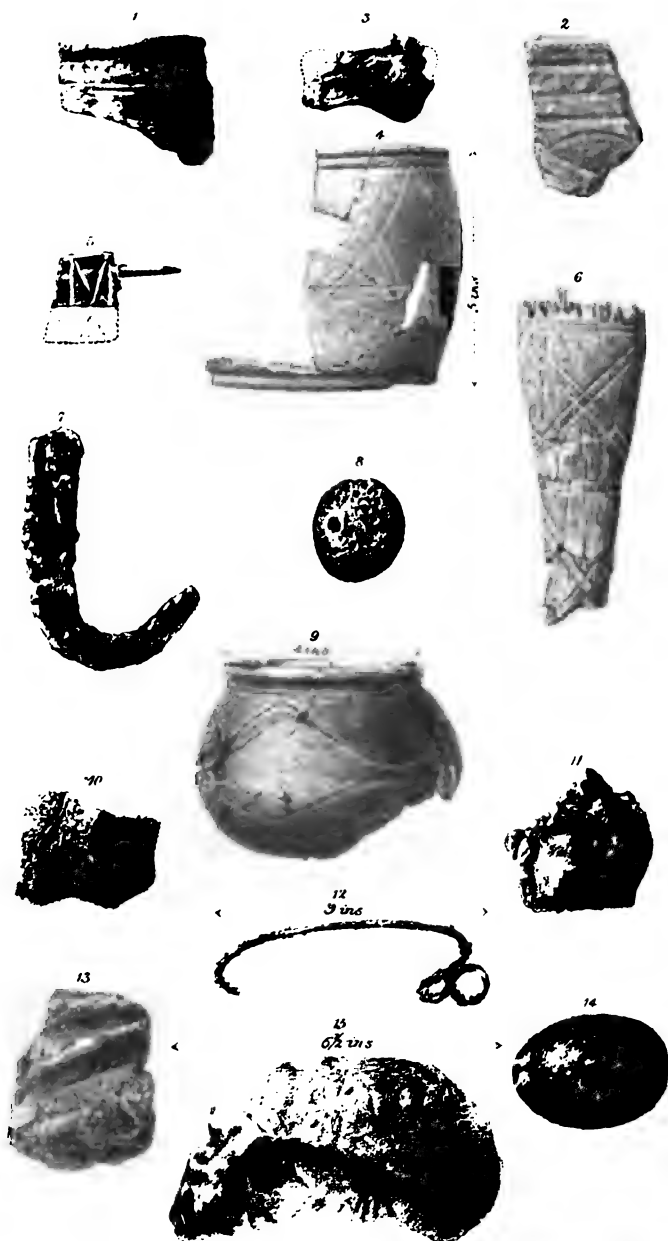
platform, leaving a space of about 5 square feet behind it, which was sheltered in part under a shallow excavation in the corner of the shaft. The rubble round this wall, or barrier, was small, and readily separated from it.

No galleries existed on the south, west, or east sides of this shaft, which had all the appearance of having been left incomplete; even the tools of the miners, consisting of a fine wedge, a pick, and three tines of deer's-horn, were found on the floor; the wedge and the pick in two separate holes in the chalk, embedded in fine silting, and the tines lying near together on the rock platform. The work was perhaps interrupted by the death of the owner of the pit. No marks of any description were found over the entrances of the two galleries; but the original face of the chalk had to all appearance scaled off. There were numerous accidental scratchings and indents on the main walls.

It should be mentioned that the flints found in this shaft were in all respects as good and serviceable as any that we met with in the adjoining excavations. Some of the blocks of grey chalk in the filling-in bore marks and symbols, which it is proposed to describe on another occasion. In the south-west corner, a small recess, about 3 feet deep, partly supported on rock corbelling, may perhaps have been used as a stage when the shaft was excavated.

No galleries having been found to run eastwards from the new shaft, to account for the blank in the plan of the excavations south of the Cave Pit, steps were now taken to search for a shaft adjoining galleries A and B. On examining the surface, a small patch of rank grass attracted attention, and on removing the turf blocks of chalk were discovered, which at first led to the belief that the shaft we were searching for had been found. But on enlarging the hole, it was soon perceived that if it were a shaft, it would be a very narrow one. We soon noticed, however, that many of the chalk blocks were unusually rounded, and that some of the potsherds, which were found in considerable quantities, were formed of finer paste than any that had been before met with on the west side of the camp; and a greater variety was observed in their ornamentation.

Besides coarse black potsherds fragments of not less than eight different pots were thrown out of the little pit (*see* Pl. XI, figs. 1 and 2). Some were single sherds; but others occurred in sufficient quantities to encourage the hope that enough would be recovered to lead to the restoration of at least one of the pots of which they formed part. This has since been partly accomplished in the case of a brown domestic vessel, 6 inches in diameter and 5 inches high, which is believed to be of a type more com-



Contents of Small Pits, Gissbury. $\frac{1}{2}$ actual size except Figs 4, 9, 12, 13.

monly met with on the Continent than in this country.* (Fig. 4.)

A few bones of animals were found at different depths in the same pit, as well as several pebbles, two mussel-shells, and some burnt pieces of flint (fig. 11). Also a rubbing-stone, some flint flakes, and several large pieces of charcoal; and, quite at the bottom, a small iron hook with an interior cutting edge (fig. 7). A small portion of a wooden handle reduced almost to a state of dust still occupied the socket of the implement. The iron, though rusted, was in a fair state of preservation.

The potsherds, and other objects in the little pit, were so mixed together, and the fragments of the brown pot were met with at such different levels, that it seemed probable that the contents of the pit had been disturbed at some remote period. At the bottom, in two places, there were small heaps of black earth; and the chalk walls were covered with white mould, which the workmen said was always found where animal-matter had been buried. The little pit is of an oval shape, and measures 5 feet from north and south by 4 feet from east to west. Including the chalk blocks which covered it, in common with the ground around it, it is 4 feet 6 inches in depth.

After the pit had been cleared out, Mr. Ballard, of Broadwater, found a bone object with cross lines upon it. This led to a further search, when we recovered three other pieces, which on being fitted together formed a carding comb, the length of which with the handle, which tapers towards the end, would if perfect be about five inches; the teeth were wanting. The comb appears to have been made out of a rib of ox, and bears marks of fire (fig. 6).†

Further attempts to discover a shaft were now made between the small pit I, and shaft V, when various pieces of coarse pottery, some flint flakes, pebbles, burnt flint, one or two bones of animals, and some charcoal, were met with from 12 inches to 2 feet beneath the surface of the ground, 10 feet east of the shaft. Four other trial holes were opened without meeting with any remains; but subsequently some pebbles, potsherds, and burnt fragments of flint were met with near the surface in three places (*see* P. P. on Plan. Pl. X). The depression in the surface in one case led me to expect greater results.

A shaft or chamber, of which the height of the roof could not be ascertained, being known to exist on the south side of gallery C, on following the clue thus afforded, and noticing a small patch of dark grass, such as led to the discovery of the little pit just

* As the ornamentation was clearly a survival, the form may also be so.

† On further search part of a small terra-cotta ornament, perforated, and a fragment of small comb with one of the teeth, were also recovered from the same heap (figs. 3 and 5).

described, we dug a circular hole about 4 feet in diameter on the spot. From 8 inches to 2 feet beneath the turf two or three pebbles, many pieces of burnt flint (about the size of macadamised granite), some coarse potsherds, several pieces of hard sandstone, and numerous whole flints as well as flakes, were met with, also part of a leg-bone of calf or small ox, and a single piece of burnt clay. At 2 feet deep, the bottom proved so hard that Guiles, the foreman, thought that we had reached the natural chalk. The large number of flints and other remains which were found in this small hole, with other indications, led me to doubt whether this would prove so; but I did not like to break through the hard floor without advice. The doubt being shared by General Lane Fox, who visited the work a few days later, we broke up the chalk floor, which proved to be 7 or 8 inches thick, and found several fragments of brown and black pots—one of which has been partially restored. (See Plate XI, fig. 9,) also a portion of the jaw of a goat, and a large piece of rubbing-stone, besides several flakes, and small pieces of burnt flint and hard stone—in all 31 pieces of broken stone in this one pit. At the bottom there was a layer of black earth.

Subsequently, on cutting a section through the walls of this pit, it was found to be surrounded with a cist of concrete, about 12 inches thick, formed in the filling in of a shaft.* (See Plan, shaft VI, S.P. II.)

The possibility of these little pits being graves having early suggested itself, further search was made for dark green patches in the turf, which was rewarded by the discovery of two more pits (III and IV), 9 feet apart. One of these little pits (III), which like the rest was oval, proved to be only 3 feet 7 inches from north to south, by 3 feet 1 inch from east to west, and 3 feet deep. There was a slight rise in the ground over it, due to a quantity of chalk rubble which had been laid on the surface. The pit itself was sunk only 5 inches into the chalk. Its contents were fragments of two pots, one black and the other brown; two mussel shells, some birds' bones scorched, flint flakes, charcoal, one or two pebbles, and some burnt pieces of flint. Black mould was found at the bottom of this pit also.

The fourth small pit (IV) stood east and west. It was 5 feet long and 4 feet deep. Its contents were three dozen sling-stones; three pieces of burnt clay, on which General Lane Fox detected the impress of sticks or wattles (fig. 13); a terra-cotta bead, or whorl, $1\frac{1}{4}$ inch in diameter (fig. 8), of coarse clay, marked with semi-punctures; some rude flint implements (one

* Eight inches beneath the surface Mr. Rice, member of the Sussex Archaeological Society, who paid several visits to Cissbury, and gave me much assistance, found a worked flint implement embedded in the filling in of this pit. Others were found at a greater depth subsequently.

about 12 inches from the bottom); sherds of two kinds of pottery, red and black; flint flakes; a few fragments of calcined flint; a single oyster shell; some teeth of sheep, ribs of mouse or vole, and the bone of a small ruminant, polished, and stained by smoke, with indented marks upon it.* There was also, quite at the bottom of this pit, an iron object, which might possibly be the handle of a wooden stoop, rotten wood, almost in a state of dust, being associated with it (fig. 12). Two fragments of iron pyrites, much decomposed, were adhering to it. The iron was found to be highly magnetic.

In this pit there appeared to be two distinct heaps of black earth, one at the east end, and the other on the north side. In the earth at the east end I found a blackened sling-stone, remarkably regular in shape, like a hen's egg (fig. 14). It was the only pebble found in the lower part of the pit. This appears to be the more worthy of note, when it is remembered that 36 pebbles were found in the upper part of the same pit.

Black mould, of a sticky consistency, resisting the rain, still adheres to the east and north walls of the pit, up to about twelve inches from the floor.

Diversely from small pit II, which was partly filled in with flints, only three or four were noticed in small pit IV, but there were three in the wall of the cist at the east end.

The pit itself was filled with rubble and chalk débris. Amongst the small blocks I found a rounded, and apparently worked, piece of chalk, with a hole bored through the narrow end. Accidentally or purposely it bears a resemblance to the cranium of some animal. Subsequently Lord Rosehill, on visiting the excavations last November, picked up two more rounded pieces of chalk with holes in them, from the debris round S.P.I., where the carding-comb had been found. They were similar to one in his museum which had been found in Mr. Tindale's pit with the horns of *Bos primigenius*, and are pronounced to be loom weights (fig. 15).

To arrive at any correct conclusions regarding the use of these little pits, it appeared requisite to ascertain whether there were any galleries running in a north-easterly direction from shaft VI, which might account for the peculiar features in the plan south of the Cave Pit.

Returning, therefore, to shaft VI, we commenced a wide trench 4 feet deep, along its east side, from cist II, and then, following the chalk walls, ascertained that its size was 24 feet by 20 feet. This proved so considerable, that at the advanced

* Recognized at the meeting, by the President, as a bone of roebuck, which had been used to separate the threads in a loom.

period of the year at which we had arrived, I was obliged most reluctantly to postpone the work of excavation.

Considering the situation of the shaft (adjoining gallery C), and the fact that we probed the walls of the caves adjoining the space on the south side of it, without being able to detect the existence of galleries, it may very possibly prove to be a shaft without galleries like Mr. Tindale's pit. If so, though the absence of human bones in the small pits would still be a difficulty,* the evidence, on the whole, points to their being graves; and although some of the remains are of a later date than any assigned to the shafts and galleries, it should be remembered that there is reason to believe that the little pits have been disturbed, and that there may have been secondary interments. There appear to have been interments at Cissbury of an earlier date, without cists, on the same spot, and, if so, it is quite conceivable, or rather perfectly in accordance with what we know of the superstition of early races, that the miners would have objected to run galleries under graves for fear of the spirits.

Some of the earth from the floor of one of the small pits having been sent to Professor Rupert Jones, he has made the analysis which is appended. Dr. Gwyn Jeffreys has kindly determined the shells.

The excavations have been visited and inspected at different stages by members of the Society of Antiquaries, the Anthropological Institute, and other learned bodies. The following have spent more than one day on the Hill, or have paid several visits to the excavations: Lord Rosehill, Major-Gen. A. Lane Fox, Major Wisden (who has shown his appreciation of the importance of the work by the readiness with which he gave his permission to continue the excavations), Professor Rupert Jones, Mr. E. W. Brabrook, F.S.A., Mr. T. W. Cowan, Rev. Canon Gover, Dr. Kelly, Mr. R. B. Martin, Mr. J. J. Merriman, Mr. E. Rice, and Lieut. M. J. Harrison, R.N., to whom I owe thanks for corrections in the bearings of some of the galleries. Mr. James Fergusson, the Rev. James Beck, Mr. Dewing of Bury St. Edmund's, Mr. G. M. Atkinson, Mr. F. Petrie, Dr. Stevens of Andover, and Mr. J. E. Price, F.S.A., have also spent some hours in examining the pits and galleries. Many residents in the neighbourhood have taken considerable interest in the work; and I must not omit to thank Mr. Ballard for the tent he erected as a temporary museum and refuge, which I am sorry to say was twice levelled with the ground by gales, though pitched in one of the basin-like hollows, which it may be presumed were formerly used for shelter, though

* Since this paper was read, I have succeeded in detecting the presence of fatty matter in the black earth, which goes far to prove that it is the result of decomposed animal remains.

the British dwellings are generally considered to have been at the east side of the camp, where many fragments of pottery are found within 8 inches of the surface.

APPENDIX.

Contents of a small box of earth swept up from the bottom of one of the little pits.

1. Angular débris of chalk
2. Brown earth, which was sticky when washed.
3. Charcoal, abundant in minute fragments.
4. Small land shells, and fragments of larger land shells (*see list.*)
5. Vegetable rootlets, bracts, &c.
6. Fragments of bones (metacarpal of small deer), minute bones of mouse and vole.
7. Small fragments of oyster shells.
8. A few small fossil organisms from the chalk (*Polyzoa.*)
9. Fragments of small flint splinters.
10. A burnt piece of flint.
11. A piece of burnt sandstone. It was "upper greensand" with brown specks; the green grains having been oxidized, and cavities left where the sponge spicules were.

*Shells determined by Dr. J. GWYN JEFFREYS, F.R.S.,
February 1878.*

1. *Helix rotundata.*
2. " *Caperata.*
3. " *hiaspida.*
4. " *Cantiana.*
5. " *pulchella.*
6. *Bulimus obscurus.*
7. *Pupa marginata.*
8. *Vertigo pygmæa.*
9. *Clausilia rugosa.*
10. *Cochlicopa lubrica.*
11. *Achatina acicula.*
12. *Carychium minimum.*
13. *Cyclostoma elegans.*

All these species are now living in the district. The blind or eyeless, *Achatina acicula* is frequently found in old graves, being subterraneous in its habits. (*Note by Dr. Jeffreys.*)

DISCUSSION.

Major-General LANE FOX expressed his dissent from some of the views of the author's; he had examined the shafts and galleries carefully, and thought that there was no evidence of them having been inhabited. The evidence in favour of their having been filled up quickly after excavation was he thought, even stronger in this case than in some of those which had already been brought to the notice of the Institute; the shaft, also, was of more irregular form than the diagram might lead one to suppose, and resembled the others in all respects. The evidence of their having been excavated by people of the Stone Age remained the same as before. The small pits found in rubble of the shaft were undoubtedly of more recent date, but he did not believe them to be graves. The excavations in Mount Caburn, conducted by him, threw some light on the subject, as similar pits had been found there. Some fragments of clay moulded on to the form of wattling for huts which Mr. Harrison had shown him, were similar to fragments found in Mount Caburn, and showed that the pits were in all probability connected with habitations.

Mr. MOGGRIDGE suggested that the small pits may have been the *equivalents* of the rifle-pits of modern days; similar to those at the fine old camp on Mynydd Carn goch near Llandilo, so well placed there to assist in the defence of the entrances to that camp.

Mr. LEWIS thought that the absence of human bones, remarked on by General Fox, was not confined to this case; he was under the impression that attempts had been made in other cases to argue against the human origin of some stone implements on the same ground; at the same time the explanation offered for such absence in one case might not be applicable to another.

Professor RUPERT JONES's remarks on the subject were chiefly directed to the substantiation of Mr. Park Harrison's description of the small chalk enclosure ("cave") in one corner on the floor of the opened shaft, which certainly existed at the time of his visit. He thought the allusion made by Tacitus to the Belgæ having used such underground excavations for refuge was clearly applicable to such shafts and galleries as those opened at Cissbury, and strengthened Mr. P. Harrison's hypothesis that people subsequent to the original flint-diggers at times used these mazy passages for retreat from weather and enemies.

Mr. CARMICHAEL inquired whether, supposing the views maintained by Major-General Lane Fox in his communication on the Cissbury excavations were accepted as the correct explanation of their purpose, there was any other evidence of similar shafts and galleries being found elsewhere to have been made for the sole purpose of extracting flint implements.

Mr. F. G. HILTON PRICE said that although he had not been able to visit the excavations at Cissbury, he recognized from Mr. Park

Harrison's description great similarity in the outer pits recently opened there to those at Mount Caburn, and that the contents were likewise similar. None of the pottery or other objects exhibited could be assigned to a greater antiquity than late in the Romano-British period.

He did not consider that bodies buried by inhumation in the chalk during the Romano-British period would have entirely perished, as the author imagined they would.

The President, in thanking Mr. Park Harrison for his paper, expressed to Major Wisden, who was present, the obligation of the Institute to him for the facilities he had so kindly afforded towards the investigations at Cissbury. With regard to the ramifications of the pits, as shown on the author's plan, he could not suppose that they had originally any connection whatever with the purposes of concealment or defence. The height of the galleries was inconvenient for any such use, and, moreover, there were but few traces of occupation. He pointed out that the window-like openings in the walls of the galleries were in all probability made merely for the purpose of ascertaining their thickness, so that the old miners might know whether they were leaving supports of sufficient thickness to carry the weight of chalk above, but not so thick as to interfere with getting the greatest quantity of flint compatible with safety. The presence of stalactites in the pits seemed, however, to justify a belief that they had for some time been left accessible to the air, as without some means of escape of carbonic acid from the water holding the stalactitic matter in solution no deposit would take place. Sufficient air-passages might nevertheless be left without any intention of occupying the pits. With regard to the shallow pits described, he did not regard them as of a sepulchral character. The fact of other bones being preserved in them afforded an argument against the supposition that the human bones had entirely perished. There was, moreover, a certain amount of evidence of the spots having been occupied by the living rather than the dead, as not only was there the weaving-comb found there, as described by the author, but also several weights formed of chalk, and of the same character as those used in the ancient looms, and moreover one of the bones from Pit IV, probably a limb-bone of a roe deer, bore evident marks of long use for keeping threads apart, the upper and lower surfaces being polished and scored by the threads. He thought that these pits could not have been graves, nor were they deep enough for shelters. The amount of bones and other relics found in them hardly justified their being called refuse pits, but they might in some manner have been connected with habitations, either as means of drainage, as fireplaces, or as for some other use.* As to the date of these pits, he thought it might be placed

* Major Godwin Austen has since mentioned that some of the tribes of India sink a pit in the middle of their huts, on the edge of which they sit. The sketch, which he has kindly supplied, shows some Battas of Skardu seated on the edge of a pit which has been sunk to receive a lathe used for the manufacture of pots of stone, such as are in use all over Ladak and Battistan.

somewhere towards the fifth century. Some of the pottery much resembled in form that found with Merovingian interments, while other pieces were more Roman in character.

Mr. Harrison regretted that Major-Gen. Lane Fox had not heard the paper read, and that he had been unable to visit the excavations at an earlier stage. The plan had necessarily been taken near the floor of the shaft in order to show the galleries, and the walls of the presumed cave hut. There was no sufficient evidence that the galleries had been used for habitations in the ordinary sense of the term; but the sharpness of the chalk along the walls was no proof that they had not been made use of, for a vast number of persons have visited them, and Mr. Harrison and the workmen have spent many hours, and indeed days, in the galleries, without rubbing off the angles of the chalk, which, moreover, had been formerly protected in most places by rows of chalk débris. The roofs, floors, and jambs of openings between galleries, were in places much rubbed.

As regards the little "windows," they differed in size and character altogether from the doorways or openings leading to surrounding galleries. This would at once be seen on visiting the excavations.

The question whether the little pits were used for interments, would, Mr. Harrison believed, by-and-by be so determined. The state of the objects found in them accorded with funeral practices elsewhere; their broken and burnt condition being due to the idea that they would thus be rendered fit to accompany the deceased to another state of existence.* Some of the objects (as for instance the rubbing-stones, and carding-comb,) being in an undecayed state, it would have required the exertion of some considerable force to have broken them into fragments.

The site appeared to be far too much exposed for wattle-huts.

Explanation of Plates (X and XI).

PLATE X.

1. Plan showing the several shafts and galleries in section at a level of one foot above the floor line.

The shafts that were not cleared out (II and III) or had been filled in (I) are lightly shaded. Shaft VI, at the time the paper was read, had been excavated to a depth of 4 feet only. It has since been found to be 30 feet deep. The position of the skeleton of a flint worker is indicated in its centre. The form of

The Nagas sink pits of much the same character for the reception of their looms, and sit with their feet below the surface of the ground when weaving. When the work is compact, the Nagas of the N.E. frontier store their grain in pits 4 to 5 feet deep, sunk in the ground, and covered over with a slab of stone, or a piece of matting plastered over with earth. The opening at the surface is just large enough to admit a boy, and the pits are made to expand towards the bottom. These pits are as often outside the houses as inside, and are difficult to find by strangers, so that in war on the recapture of a village, store of provisions are frequently found untouched.

* Tylor's "Prim. Cult." vol. i, p. 491, &c.

the "Cave Pit" (shaft II) at the level of 5 feet above the floor is shown by a dotted line.

S. P. I-IV, are small pits in which the objects shown in Plate XI, were found. P. P. show the spots where potsherds, bones of animals, flakes, burnt flints, and pebbles, were found from eighteen inches to two feet beneath the surface.

PLATE XI.

Objects found in small oval pits, I-IV.

Figs. 1 & 2. Fragments of pots found in S.P. I.

- " 3. Pierced fragment of terra-cotta ornament, from ditto.
- " 4. Pot of brown ware from ditto.
- " 5. Fragment of comb from ditto.
- " 6. Portion of bone carding-comb from ditto.
- " 7. Iron hook from ditto.
- " 8. Terra-cotta bead (or spindle whorl ?) from S.P. IV.
- " 9. Food vessel of fine red ware from S.P. II.
- " 10 & 11. Specimens of hard rubbing stone, and burnt flint, found in all the small pits, broken into small pieces.
- " 12. Iron object found in S.P. IV.
- " 13. Portion of "dab" with impression of wattles, burnt red, from ditto.
- " 14. Sling stone found at the bottom of ditto.
- " 15. Loom weight of chalk, found in S.P. IV.

Since the foregoing paper was in type the Directors of the Institute have received a short communication from Mr. Harrison, descriptive of his later researches. It is here appended, in order that the account of his work at Cissbury may be brought up to the latest date, and thus rendered as complete as possible.

POSTSCRIPT, APRIL, 1878.

SINCE this paper was read, whilst engaged in excavating shaft VI, in order to ascertain whether any galleries ran from it under the small pits adjoining, we found a skeleton in the centre of the shaft, 16 feet beneath the surface. It was lying on its right side, in a contracted position, with the face to the east; and it was surrounded with a single row of chalk blocks, and large flints. Outside of this quasi-cist, and immediately behind the remains, there were six small flint implements, and a larger one lay near the head in front. Eight snail shells (*Helix nemoralis*), principally white, with an unpierced disk of chalk, $\frac{3}{4}$ in. in diameter, and a single pebble, bearing marks of fire, were the only other objects that appeared to have been interred with the body. The skeleton has been pronounced by Professor Rolleston to be that of a man under five feet in height, and about twenty-five years old. Above it there was chalk rubble, and over this a layer or seam of red

clay, which sloped down from all sides of the shaft to a depth in the centre about 14 feet. From this level to the surface there were alternate layers of fine chalk *débris* consolidated with water; and small fragments of chalk, about the size of macadamised stone—the bands or layers being from 4 to 8 inches thick. It was in the upper part of the fine concreted chalk, that the small pit had been sunk, which first drew attention to this shaft. (See p. 424.)

At 20 feet from the surface, on the north side, we found several pieces of red deer's-horn scorched with fire, and also some calcined and smoked chalk blocks, and a bone of ox. On the south side, at the same level, there was a heap of flint flakes, between 300 and 400 in number, with a single flint implement, slightly bleached, lying near them, with the point broken off. Four masses of iron pyrites were found within a foot or two of the flakes.

The filling in of the shaft below the skeleton appeared to be formed of the same description of *débris* that was left by the old miners in the galleries, viz., chalk of all sizes, including some large blocks which were piled up round the central heap. The workmen thought there could be no doubt that it was deposited there when the galleries were originally excavated.

At 30 feet deep, galleries and caves were found on all four sides of the shaft, the walls of which were remarkably straight, and square, with more the appearance of freestone than chalk. There were five galleries, three running south and the others northwards, besides five caves, which extended only about 6 feet from the shaft in an easterly and westerly direction. Two of the caves on the west side and one on the east side were quite free from chalk *débris*, excepting at the entrances, and had all the appearance of having been used for shelter. Between the two caves on the west side there was an opening in the chalk wall, 1 foot 3 inches high, and 1 foot 2 inches wide; and in the southernmost of the two, three square chalk blocks were placed upright against the walls. They may perhaps have been used to fill in the opening, in the way described in gallery D.

Several deer's-horns, which do not appear to have been used as tools (having several branching tines on them) were found in two of the caves. There were also small cup-shaped marks on the walls, and some distinctive lines made with a flint instrument over the entrance of a gallery, much like those that have been found in three other pits. They have been carefully cut out and photographed.

A gallery ran northwards some 16 feet under gallery C, and then turned westwards. Its extent could not be ascertained,

owing to the dangerous state of the roof. It was the first instance that had been met with at Cissbury of a gallery running underneath other galleries. The idea that had been entertained that shaft VI was older than the "Cave Pit" and its galleries must, I think, be given up.

It should be mentioned that Dr. Muirhead of Cambuslang, joined in the exploration of shaft VI; and Professor Rolleston, who has undertaken the description of the skeleton, bears with him half the expense of the excavation.*

JANUARY 8th, 1878.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris. Vol. XII, No. 3.

From the EDITOR.—Matériaux pour l'Histoire de l'Homme, Sept. 1877.

From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. V, Nos. 3 and 4.

From Prof. F. V. HAYDEN, Hon. M.A.I.—United States Geological Survey of the Territories. Vol. IV; Bulletin ditto. Vol. III, No. 4.

From the LEEDS PHILOSOPHICAL SOCIETY.—The Worth of Life, by Wm. Lord Archbishop of York.

From the SOCIETY.—The Journal of the Bombay Branch of the Royal Asiatic Society. Extra number. Vol. XII, No. 34A.

From the SOCIETY.—The Journal of the Asiatic Society of Bengal. Vol. XLVI, Part 2, No. 2; Index to Vol. XLV; Proceedings, ditto. No. VI, June 1877.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Petersbourg. Tome XXIV, No. 3.

* I am very grateful to Dr. C. Kelly, of Worthing, for his assistance in collecting, and taking charge of the remains of the flint-worker. It is due to his aid that only some of the smallest bones of toes and fingers are wanting.

From the INSTITUTE.—Proceedings of the New Zealand Institute. Vol. IX, Part 2; Index, ditto. Vols. I–VIII.

From the ACADEMY.—Proceedings of the Cracow Academy of Sciences. Vol. I, 1877.

From the EDITOR.—*Nature* (to date).

From the EDITOR.—*Révue Scientifique*. Nos. 24 to 27, 1877–8.

From the SOCIETY.—Journal and Proceedings of the Royal Society of New South Wales. Vol. X, 1876; Report of Council of Education for 1876; *Kamilarói*, and other Australian Languages, by the Rev. William Ridley.

MAJOR-GENERAL A. LANE FOX, F.R.S., exhibited and read a paper on a collection of some 150 objects from the Andaman and Nicobar Islands, presented to him by E. H. Man, Esq., letters from whom were also read.

CLASS—ETHNOLOGY.

Observations on Mr. MAN'S collection of Andamanese and Nicobarese objects by MAJOR-GENERAL A. LANE FOX, F.R.S.

The objects enumerated in Mr. Man's list, and so carefully described by him, afford us the first opportunity that we have had of comparing the productions of these primitive people with those of other races, for although the Institute and the Ethnological Society before it, have received numerous communications on the subject of these Islands, some of them of considerable interest, none have up to the present time conveyed to us so much detailed information upon the construction and uses of their weapons and implements. And without such details, comparisons are only liable to mislead.

So little indeed has been the intercourse with these people, owing probably to their inveterate hostility to Europeans, that I find on turning to Mr. Herbert Spencer's "*Descriptive Sociology*"* nothing is recorded of the Andamanese under the head of Arts except that they broil their meat over a kind of grid made of bamboos.

It may be useful, before speaking of any points of interest arising from an examination of the present collection, briefly to allude to some of the questions which have been mooted as to the position of these islands and their probable connection at a former period with the mainland.

* *Descriptive Sociology*, or groups of sociological facts classified and arranged, by Herbert Spencer, No. 3, p. 49.

One view is that referred to by Mr. Dobson, in his valuable paper on the Andamans and Andamanese,* viz., that these islands, forming the middle portion of a series of smaller islands and shoals lying between Cape Negrais in Burmah, and Acheen Point in Sumatra, were connected with the main land of Burmah and the Malay peninsular at a comparatively recent geological period, when the continent of Asia extended far southwards beyond its present limits, and included the Islands of Sumatra, Java, and Borneo, and that the Andamans then formed part of a large island in the delta of the Irrawaddy, which emptied itself into the Bay of Bengal at some distance from its present mouth. In proof of this, it has been shown that almost every species of animal inhabiting these islands is identical with those on the continent of Burmah, and above all, that almost every species of fresh-water fish found on the islands, one species or variety only excepted, is the same as found in the fresh waters of Burmah, proving not only a former connection, but further, that the islands have not been submerged since they ceased to form part of the continent of Asia, for submersion must necessarily have been attended with the destruction of the fresh-water fish.

Some difficulties, however, appear to stand in the way of accepting this view in so far as the theory of the delta is concerned, and its relation to the distribution of man by geological changes, for in addition to the fact that one of the islands contains a mountain 2,400 feet high, it has been conjectured by Mr. Theobald, whose work on the Geology of Pegu† affords the most recent information on the geology of this district, that the whole of the alluvium of the present delta of the Irrawaddy for a distance of 140 miles from its mouth, and extending over a breadth of about the same distance at its southern extremity, is of marine origin, showing that the sea must in Pleistocene times have extended inland as far as Prome, and that the delta is still rising. If so, it could not within the human period have afforded any closer land connection with the Andamans than exists at the present time. According to Mr. Theobald's view the delta of the Irrawaddy and the Gulf of Martaban, which is the continuation of it, forms part of a trough or synclinal bend caused by lateral pressure, which has at the same time upheaved the two ranges of the Yomah mountains, forming the eastern and western boundaries of the valley, as well as those other ranges which in this region run parallel to them. As the line of islands and shoals, of which the Nicobars and the Andamans form part, are

* "On the Andamans or Andamanese," by G. E. Dobson, B.A. *Journal of the Anthropological Institute*, vol. iv, p. 457.

† "On the Geology of Pegu," by William Theobald, Esq. *Memoirs of the Geological Survey of India*, vol. x, Pt. 2.

distributed in the direct line of prolongation of the western Yomah range, which runs along the coast of Arracan and Pegu, and forms the anteclineal western boundary of the Irrawaddy valley, it would appear probable that they may be attributed to the same geological causes combined with these volcanic agencies which are rife in these parts. If these views are correct, it would certainly appear that it is upon a north and south line rather than across the Gulf of Martaban to the eastward that we should look for the land connections by which the Andaman islanders may have arrived at their present destination, and this is also the direction pointed out by the physical peculiarities of the people themselves which connect them with the Negritos of the south and with that great family of Black races which has its home in the southern hemisphere rather than with the Mongols of the east and north.

The ethnic affinities of the Andamanese have long been a puzzle to anthropologists. Pritchard many years ago pointed out their relationship to the Samangs of the Malay peninsula and the inhabitants of the Penang Islands in the Archipelago of the Philippines, including them under the head of "Pelagian Negroes," with the inhabitants of the northern coast of New Guinea, New Britain, New Ireland, the Louesiade and Solomon Isles, New Hebrides, New Caledonia, and Tasmania.* Mr. Wallace and others whilst recognising the classification laid down by Pritchard, gives them a more limited area, including them, with the Samangs and the aborigines of the Philippines, as a distinct branch of the Negrito race. There are nevertheless differences which have to be considered, and Professor Owen, after the examination of a skeleton submitted to him by Dr. Mouat, was unable to recognise any anatomical grounds for connecting it with the people of any existing continent.† If it were true, as supposed by Mr. Latham, that their language is connected with the Burmese of the opposite continent, it would only prove, as has often been proved before, that Race and Language do not of necessity run in the same channels, but in truth little is known as yet of the language of these people, and all which has been published by Mr. Man and Lieutenant Temple relates to the Bôjingtjda and Bôgtjfab tribes, nearest to the European settlement.‡ Each of the nine tribes mentioned by Mr. Man speaks a different language, "and a native of North Andaman is as utterly unable to make himself understood by a

* Pritchard, "Natural History of Man." Third Edition, p. 346.

† "On the Osteology and Dentition of the Aborigines of the Andaman Isles," by Professor Owen, F.R.S. *Trans. Ethnological Society; New Series*, vol. ii, p. 34.

‡ "The Lord's Prayer translated into Bôjingtjda," by E. H. Man, with Preface and Notes by R. C. Temple, Calcutta, 1877.

native of South Andaman as an English peasant would be by a Russian ;"* they are not dialects but distinct languages, although they have a common origin and structure ; they are agglutinative, and if they have any affinities, which appears doubtful, Mr. Man and Lieutenant Temple are inclined to think they lie in the direction of the Australian, Dravidian and Scythian languages, which they resemble in certain structural peculiarities, such as the use of post-positions instead of pre-positions in the use of two forms of the first person plural, one inclusive of the party addressed, and the other exclusive, and generally in the agglutinative structure of the words and in the position of words in a sentence.† In the list of objects given by Mr. Man the termination *DA* is applied to all inanimate things as well as to all animate things not human, to supernatural objects, and all abstract words.‡

An examination of three skulls by Professor Owen and Mr. Busk § showed that the proportionate breadths were as follows, viz., 830—776—828, by which it will be seen that two would be regarded as brachicephalic, and one dolichocephalic. In this respect they differ from the majority of the Negrito race ; but, on the other hand, several skulls of Negritos from the Island of Luzon, measured by Professor Virchow, || gave relative breadths of 80·8 to 90·6, which, if they were of the pure breed, shows that brachicephaly is not unknown amongst the Negritos.

The height of the Andamanese has been variously given, but all agree as to their low stature. Mr. St. John makes them 5 ft. ¶ Dr. Charles Smith from 4 ft. 10 in. to 5 ft., the females being under 4 ft. 10 in.** Mr. G. E. Dobson says that none of the tribe he visited exceeded 5 ft. 4 in., and that the females were remarkable for their small size.†† They appear to exceed in stature some of the other Negrito tribes. Pritchard, on the authority of Captain Gabriel Lafond, gives the height of the Negritos of the Island of Lasso at a little above 4 ft., nearer to 4 ft. than 4½, and says that they resemble the natives of Luzon.‡‡ Wallace says the Samangs average 4 ft. 6 in. to 4 ft. 8 in.

* *Journal of the Anthropological Institute*, vol. vii, p. 106, where a map shewing the distribution of the tribes is given.

† Lord's Prayer. p. 29.

‡ Lord's Prayer. p. 24.

§ "Description of two Andamanese Skulls," by George Busk, F.R.S. *Trans. Ethnological Society*, vol. iv ; *New Series*, p. 205.

|| Peschel, "Races of Man," p. 340.

¶ Sir E. Belcher on the Andamans. *Trans. Ethnological Society*, vol. v, *New Series*, p. 45.

** *Trans. Ethnological Society*, vol. iv ; *New Series*, p. 210.

†† G. E. Dobson, "On the Andamanese." *Journal of the Anthropological Institute*, vol. iv, p. 464.

‡‡ "Pritchard's Natural History of Man," p. 348.

In point of height the Andamanese appear to correspond most nearly to the Fuegians, who average from 4 ft. 10 in. to 5 ft. 6 in., the women being also relatively small and not exceeding 4 ft. and a few inches.* Colonel Albert Fytche† says that the Andamanese have not the projecting heel of the African negro, but on the other hand Mr. Busk, on the authority of Dr. Charles Smith, says that the heels project slightly behind.‡ Dr. Mouat says that they are not woolly headed,§ but their hair is more usually described as woolly. Colonel Fytche says it is unlike the so-called woolly hair of the negro, but grows conspicuously in separate detached tufts.|| In the case of the Papuans it has been shown by Dr. Comrie, Sig. D'Albertis, Mr. Moseley and others¶ that the tufted appearance of the hair is the result of the mode of growth in spirals, and that when the head is shaved it is found to grow uniformly over the scalp. As the Andamanese women habitually shave their heads it will be easy for future observers to ascertain whether this applies to them also. The samples of hair sent by Mr. Man, and now exhibited, are distinctly in small tufts, but it is only by an examination of the scalps that the question can be determined. In point of colour the specimens now exhibited vary from jet black to dark red, and correspond to the patterns marked 48 and 42 in Mr. Broca's tables.** The skin is described by Dr. Mouat as remarkably black and lustrous. Colonel Fytche says it is not deep black but rather of a sooty hue. Herbert Spencer in his "Descriptive Sociology" above quoted describes it as jet black. Dr. Smith says it is black, and shiny as if polished with lamp black, and Mr. St. John says it is jet black. Mr. Man has been furnished with a copy of our "Notes and Queries," and he will doubtless be able in a future communication to give the exact varieties of shade observable according to the numbered patterns,

* W. P. Snow, "On the Wild Tribes of Terra del Fuego." *Trans. Ethnological Society, New Series*, vol. i, p. 268. Herbert Spencer, "Descriptive Sociology," No. 3, Table 1. J. G. Wood, "Natural History of Man," vol. ii, p. 515.

† Col. A. Fytche, "On the Aborigines of the Andaman Isles," *Trans. Ethnological Society*, vol. v, p. 240.

‡ G. Busk, "On Andamanese Skulls." *Trans. Ethnological Society*, vol. iv, p. 20.

§ "Adventures and Researches among the Andamanese Islanders," by F. S. Mouat, p. 329.

|| A. Fytche, "Aborigines of the Andaman Islands," *Trans. Ethnological Society*, vol. v, p. 210.

¶ "Anthropological Notes on New Guinea," by Dr. Comrie, R.N., *Journal Anthropological Institute*, vol. vi, p. 106. Sig. S. M. D'Albertis' "Travels in New Guinea," *Journal Anthropological Institute*, vol. vi, p. 216. H. N. Moseley, "On the Inhabitants of the Admiralty Isles." Discussion. *Journal Anthropological Institute*, vol. vi, p. 421.

** "Anthropological Notes and Queries," published by the British Association, Stanford, Charing Cross.

and strike an average. In regard to features, Mr. St. John says they vary in a most extraordinary manner, and that some have almost hooked noses.* Dr. Mouat says they are not prognathous, "quite unlike the African negro,"† but Dr. Smith says "the African features are well developed‡ Colonel Fytche says that the "forehead is well formed and not retreating, neither are the lips coarse and projecting, and the nostrils by no means large." The difficulty of establishing any uniform standard of comparison for features must always be very great if not insurmountable.

With such discrepancies as these before us we may be excused for withholding any definite judgment as to their origin until more accurate measurements can be obtained. Nor does our knowledge of their moral character rest upon more certain data, their implacable hostility to strangers has hitherto stood in the way of all friendly intercourse, and we have no means of ascertaining to what extent they may have been justified by aggressions made upon them from without. Mr. Man, on the other hand, who is one of the first Europeans who has established amicable relations with them, describes them as a truthful and well-meaning people, and says that they suffer morally by their contact with the whites.§

It has been made a reproach to them that they are "naked and not ashamed." That they are naked, according to the European acceptation of the term, admits of no doubt, but to what extent they may have reason to be ashamed of it may be questioned. There is nothing inherently indecent in the human form, and as long as certain parts remain covered, modesty need suffer no abasement in cases where climate and the want of suitable covering make it expedient to remain nude. Dr. Mouat has shown that covering the body with clay affords the best and only escape from the vermin with which the forests abound, and this is confirmed by Mr. St. John, who, after describing the state of his shirt, "then tinted a lovely red, resulting from their frequent embraces," says "this red is the only thing one has to fear from them, as they are quite free from parasites, not having a stitch of clothing or hair on their bodies."

If it were true, as has been stated on the evidence at the time available, that "any rudiment of cincture relates solely to convenience of suspension of weapons and other objects," the case would be different, but an examination of the waist-belt called BÔD-DA, No. 27 (Pl. XIII), shows clearly that it is con-

* *Trans. Ethnological Society*, vol. v, p. 45.

† Mouat, p. 329.

‡ *Trans. Ethnological Society*, vol. iv, p. 310.

§ See his letter following this paper.

structed with a view to propriety, and Mr. Man says that it would be considered indecent to appear without one. We ought, therefore, I think, to be careful how we too hastily assume, from external appearances, the absence of all the characteristic sentiments of humanity on the part of a primitive people without due regard to their customs and surroundings. It is easy to understand how in a tropical climate, and a low condition of textile appliances, cleanliness may be best combined with Godliness by reducing the clothing to the smallest conceivable amount.

Lying more especially has been said to be a vice inherent in all the lower races of mankind, and that such is the case with savages when in contact with Europeans appears to be established on sufficient evidence, but falsehood is a weapon which in all phases of society has been resorted to by the weak against the strong. When we have acquired sufficient knowledge of the language of aborigines to be able to appreciate their lying tendencies, the causes which operate in producing the evil complained of have probably been for some time in force, and may have resulted not so much from any congenital obliquity on the part of the weaker people as from our own overbearing tyranny and injustice towards them.

The question now arises, can we, with the accurate information given us by Mr. Man, establish any social connection with other races of mankind by means of their arts and implements? In their habits, Mr. Dobson truly says, no less than in their physical peculiarities as described by Professor Owen and Mr. Busk, they show no connection with the African negroes, who have far surpassed them in the perfection of their arts. To the Veddas, Sontals and Coles of India and Ceylon, Dr. Mouat observes that they possess not the slightest resemblance whatever.

Perhaps the best course will be to go over the list which Mr. Man has furnished, and with the objects before us endeavour to ascertain whether any resemblances can be traced.

With regard firstly to their bows, No. 1 (Pl. XIV), the peculiar flattened S-shaped form, curved towards the firer in the upper part as held in the hand, and to a slight extent the reverse way at the bottom, resembles that used in Mallicollo, one of the new Hebrides, and in New Ireland. A bow of the same form, from Savage or Banks's Island, is in the Christy Collection, and the ordinary bow in use by the Japanese somewhat resembles it, being unsymmetrical in its two halves. The effect of this form, Mr. Man says, is to cause the string, when it is fired, to be arrested by the lower or convex part, and thereby to save the hand from injury; but this I hardly think can be regarded as the reason for the adoption of this form which ought I imagine

be sought rather in some peculiarity connected with the origin of the bow. I have elsewhere in the catalogue of my collection at Bethnal Green,* stated my view as to the origin of this particular form of bow which I believe to be derived from the bow trap. It would be of interest to know whether such bow traps are used in the Andamans; they are of common use in the Malay peninsula. The flattening and expansion of the two halves of the bow is no doubt to be attributed to a want of elasticity in the wood, as it is not adopted with the bamboo bow of the little Andamans No. 3 (Pl. XIV). A similar expansion of the two halves of the bow is seen in the bows of the Indians of the north-west coast of North America. The *wamera*, or throwing-stick, of the Australians, to whom the bow is unknown, shows a similar expansion of the shaft, given it probably to increase its elasticity, and, like the Andamanese bow, various degrees of expansion are seen in the different specimens. According to Dr. Mouat, the Andamanese use their bows with effect at 40 yards. The small children's bows, No. 2 (Pl. XIV), are mentioned by the Sepoy, who passed some time with them, as being used by the boys up to eight years of age, when they take to the large bow. It would be desirable to ascertain whether the Andamanese have any knowledge of the *wamera* (throwing stick).

Harpoon arrows or spears, ÉLADA-DA, No. 5 (Pl. XIV), are perhaps amongst the earliest and most universally employed weapons of savages. In my Bethnal Green catalogue† I have arranged them in four classes according to the degree of perfection attained in the construction of them. In this second stage in which the harpoon head is fitted into a socket in the shaft and connected with it by means of a loose thong, the harpoon is used by the Australians and the Fuegeans, and similar ones are also found in French caves of the Reindeer period. We also learn from Mr. Dobson ‡ that the use of the harpoon arrow is not confined to fishing, but that land animals when pierced by them are prevented from escaping by the loose shaft becoming entangled in the brushwood; hence probably their universal adoption by races that live by hunting.

Arrows, TAWL-BÔD-DA, No. 6, TRÎLÊD-DA, No. 7 (Pl. XIV), also Nos. 10 and 11.—I have suggested, in my catalogue§ that the fore-shafts of hard wood, so common in the arrows of many countries, are the survivals of the hardwood points with which they were originally armed, that is previously to the employment of stone or iron for pointing them; this view is strengthened by the specimens of Andamanese arrows before us,

* Catalogue of the Anthropological Collection at Bethnal Green. By Col. A. Lane Fox. Parts I and II, p. 47.

† P. 124.

‡ *Journal of the Anthropological Institute*, vol. iv, p. 466.

§ p. 87.

in which we see the TÎRLÊD, No. 7, in its primitive state, and the TAWL-BÔD, No. 6, which is nothing but a TÎR-LÊD, with an iron point obtained in modern times from wrecks added to it, and both are employed at the same time for different purposes. Arrows with wooden fore-shafts are rare in Africa, but universally employed in the Asiatic Archipelago. The absence of feathers on the Andamanese arrows is of less value as evidence of connection, feathers not being used as a rule either in Africa or in the Pacific, but they are almost invariably employed on the continent of Asia. Neither is the notch at the base to receive the string of any use in determining connection, as it is employed in some parts of the Asiatic and Pacific Islands and not in others. Many of the Andamanese arrows are scored at the base, outside the notch, to enable the thumb and forefinger to grip it more firmly. This mode of assisting the grip is in common use with all the hand weapons of the Australians and is used on the arrows of several races, amongst which are arrows so scored from Central America, New Hebrides, and Solomon Isles, and the same scoring is made at the junction of the fore-shaft with the cane, to give firmness to the binding with which these two parts of the arrow are joined together. Mr. St. John says,* that the Andamanese arrow is held between the thumb and the second joint of the forefinger in the manner suggested by the mode of roughening this part of the arrow. The mode of binding on the fish-bone barbs, by means of fibre, assisted by wax or other sticky substance, KÂNGATÂ-BÛJ-DA resembles the Australian and Tasmanian practice. The use of the CHAM-DA arrow, No. 9 (Pl. XIV), for ornament and not for use, appears to require further investigation, and is probably a survival of some kind.

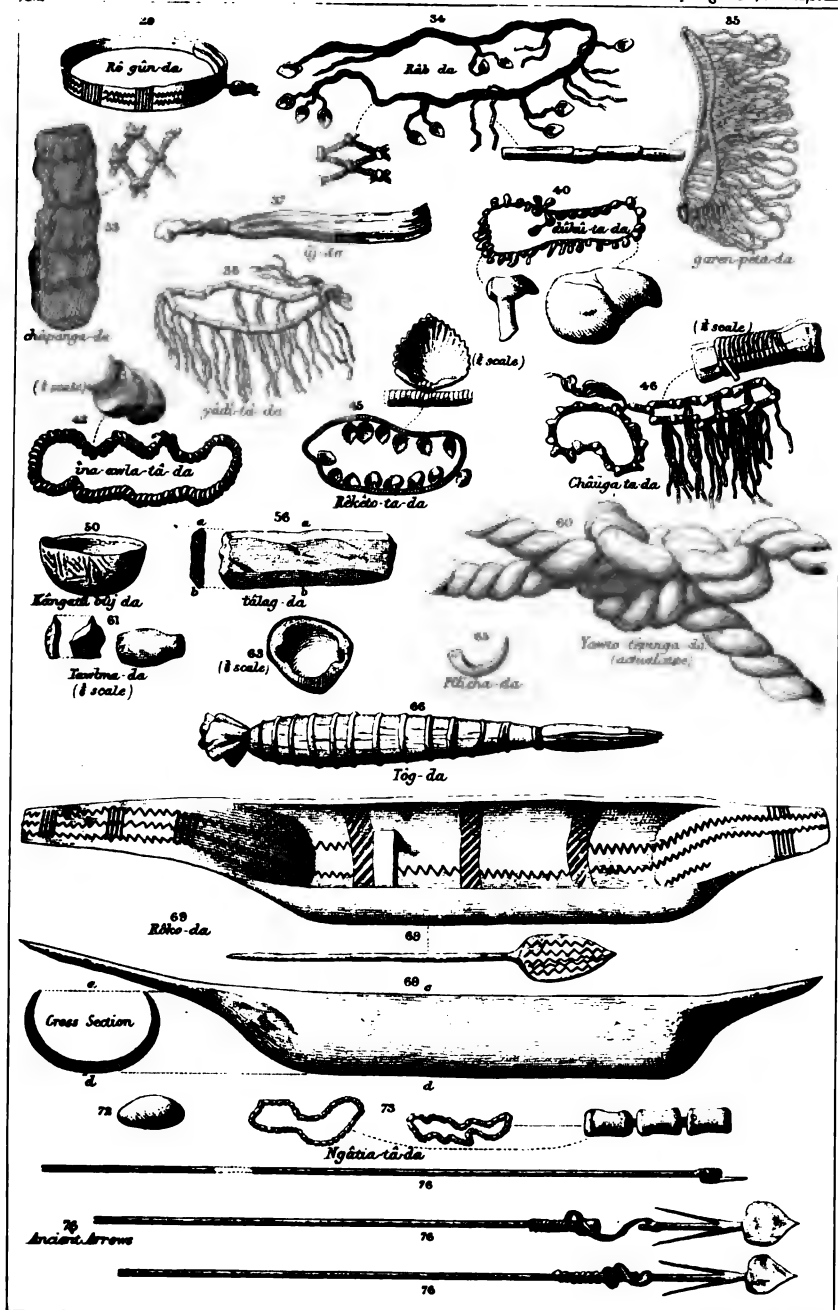
It would be very desirable to ascertain whether the blow-pipe is known to the Andamanese, and if not, whether any suitable material is available in the islands. This weapon is employed on the continent of Asia all round the Andamans.

The adze, WÔLO-DA, No. 13 (Pl. XIII), being of iron, affords no grounds for comparison, as it must necessarily be of recent introduction. But it would be desirable to ascertain what means were employed by the Andamanese for scooping out their canoes, and other like purposes, before iron was introduced or became available through wrecks on the coast.

It is worthy of being noticed in connection with this subject that stone adze-blades of a peculiar form, called MO-JIO by the Burmese, have been found in the Irrawaddy valley, and described by Mr. Theobald.† They consist of flattened blades of some hard

* *Trans. Ethnological Society*, vol. v, p. 49.

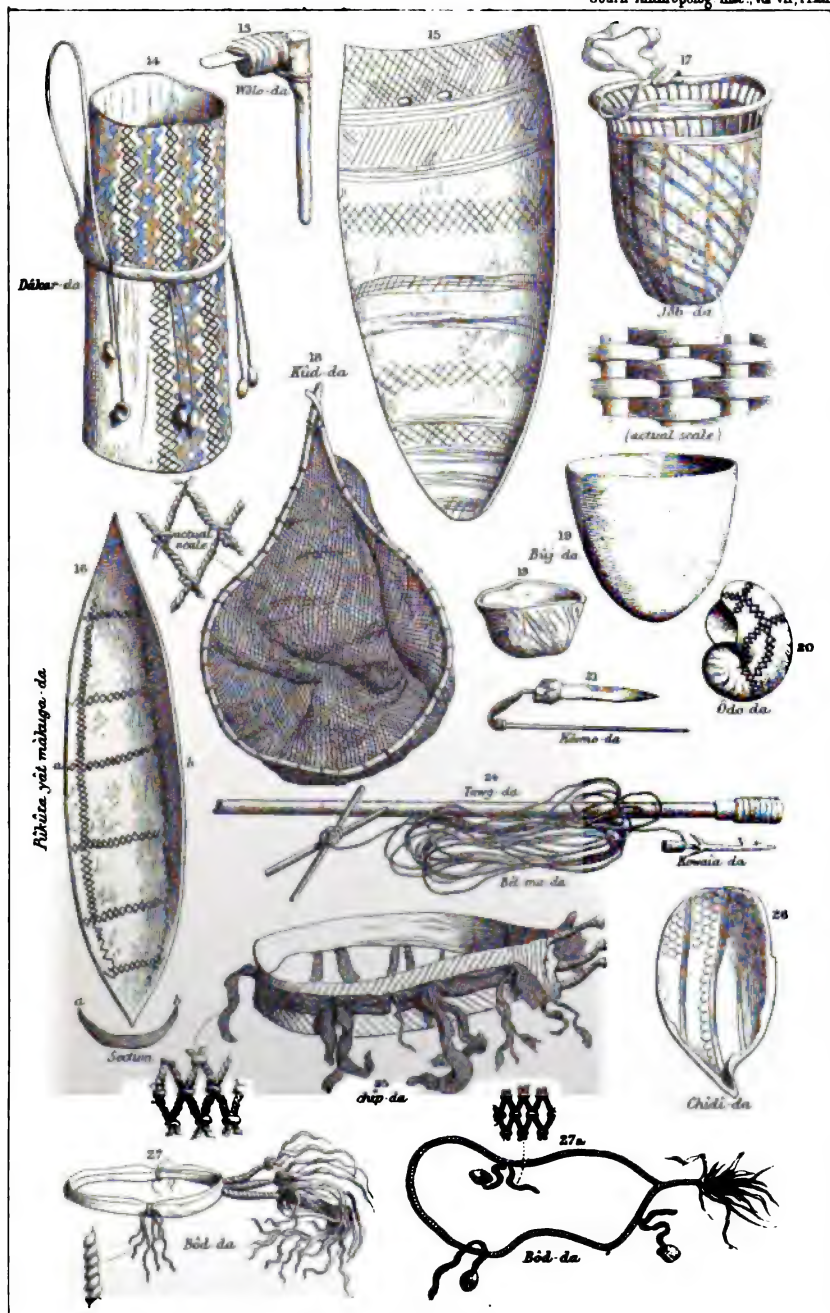
† "Memoirs of the Geological Survey of India," vol. x, pt. 2, p. 167.



J.P. & W.R. Embley, London.

ANDAMANESE OBJECTS,
obtained by M^r. E. H. Man.

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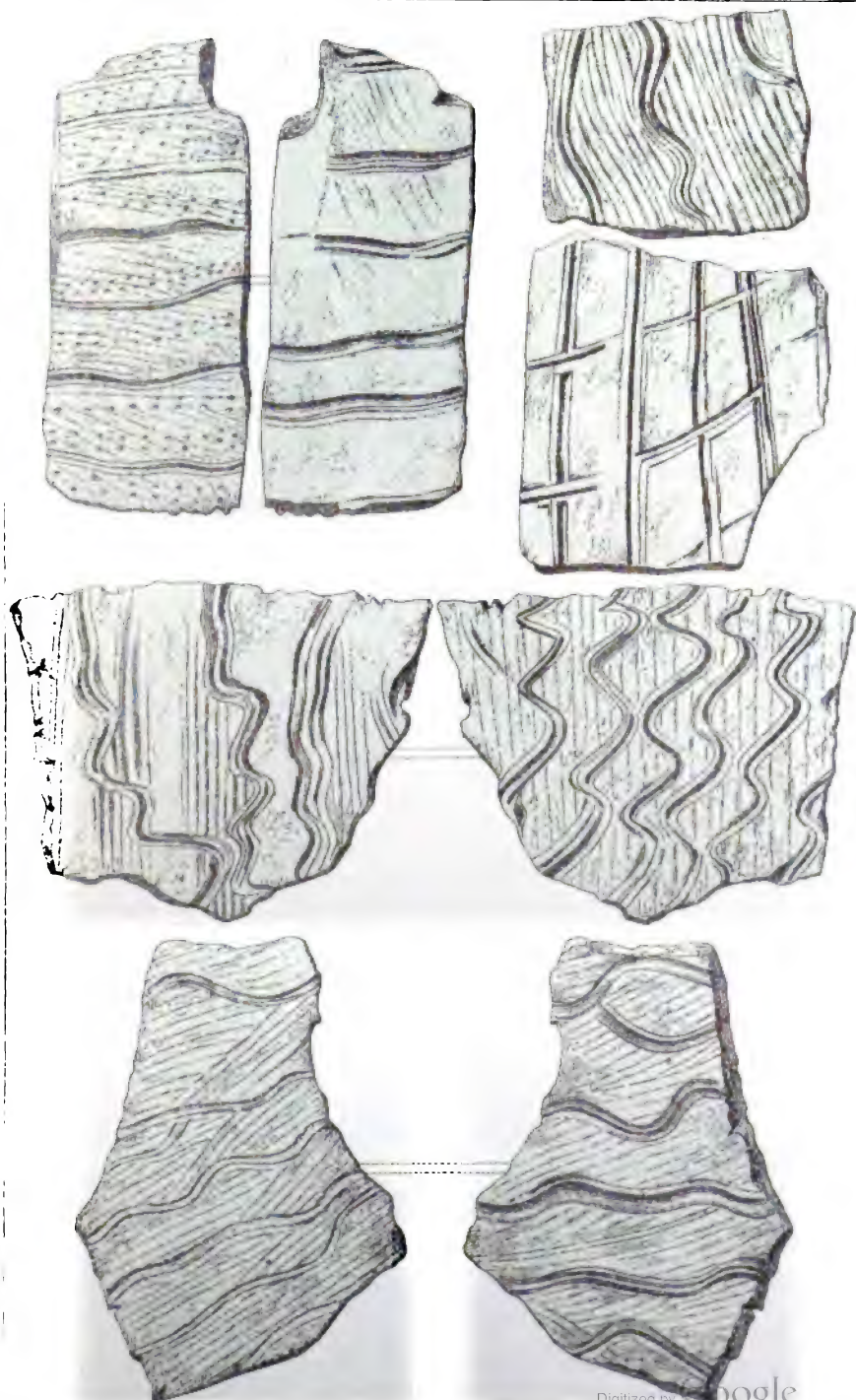
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ANDAMANES OBJECTS ,
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FRAGMENTS OF ANDAMANESE ORNAMENTED POTTERY

Gum - Kitchen Midden in Port Blair Harbour

sub-schistose rock or fine grained slate with polished surfaces, having a rectangular section, flat on the under side and bevelled to an edge on the other, and many of them have a square tang at the back to fit into a handle. Mr. Theobald has pointed out that this description of celt is of a type that is peculiar to Burmah and Pegu, and resembles the form in use in Malayan countries, more especially it is nearly identical with the adze blades used in High Island and others of the Pacific group, but it is quite unlike anything that is found in India, in which country the forms of the stone celts resemble those found in Europe. These peculiar adze blades were undoubtedly constructed by the prehistoric inhabitants of Pegu and Burmah, and if similar forms were hereafter to be discovered in the Andamans it would be regarded as sufficient proof of social contact in prehistoric times, and would serve on the other hand to disconnect them with the inhabitants of India.

It may be observed also, that the iron employed by the Andamanese, and obtained from Europeans or from wrecks, is ground and fitted to their weapons in the same way that a hard stone would be dealt with and that they have no knowledge of metallurgy. This it might be thought on a first impression is sufficient to prove that they are not shipwrecked African negroes, as the art of working iron has been known throughout Africa from time immemorial; but we learn from Mr. St. John that there is no iron in the Andamans, and the art would therefore be forgotten in a few generations, but the remembrance of it would probably have survived in their traditions.

Dr. Mouat says,* that their water vessels are formed of enormous joints of bamboo. It will be seen that the specimen now exhibited, DÂKAR-DA, No. 14 (Pl. XIII) though scooped out of a solid trunk, resembles the shape of a bamboo joint, a form which is no doubt derived from the use of that material in other places where it is available.

No information has reached us as to their mode of boring holes or procuring fire, on both of which points it is desirable we should possess some knowledge.

In the use of nets and basket work, Nos. 17 and 18 (Pl. XIII), these people resemble the Australians, Fuegeans, Tasmanians, New Caledonians, and most people in the lowest stage of culture; this appears to be one of the earliest and most necessary arts of savage life. It would be desirable that we should have more detailed information as to their mode of making and twisting string; their baskets very closely resemble some of those made by the Australians, and figured by Angas.

In the use of pottery, No. 19 (Pl. XIII), they excel the Australians, Tasmanians, Fuegeans, and most of the Pacific Islanders, who have no knowledge of it; standing in this respect on a par with the New Caledonians, Papuans of New Guinea, Fiji Islanders, and negroes of Africa generally. The pottery is hand-made and apparently confined to a deep basin-shaped form, and it has some fine grains of a white material in its composition. As is usually the case with people who live habitually in the open air, their vessels are round bottomed, thus adapting them to be pressed into the soft ground, and, as is commonly the case under like circumstances, they are carried in a casing of basket work. In many countries the ornamentation of the pottery has clearly been derived from an imitation of their basket-work coverings, and I think an examination of some of the fragments exhibited will show that this was the case in the Andamans; some of the ornamentation very closely resembles the basket in which this pot is carried, see No. 19, a specimen found in a kitchen-midden in Port Blair Harbour. See also the fragments of ornamented pottery, represented in (Pl. XVI). More information as to the composition and manufacture of these vessels is required, and any tradition as to the origin of the art.

Do the Andamanese possess any knowledge of the use of the fish-hook? Upon this point we are left in some doubt. Dr. Mouat,* quoting an article in the "Calcutta Monthly Register," for November 1790, says that they are not acquainted with its use; but in another place, when describing the arts of the Andaman Islander, he speaks casually of his hook, his net, and his harpoon as the means employed in fishing. We have no more accurate information upon this point than I am aware of, and there is no hook in the present collection. Most of the lowest savages appear to have some knowledge of this contrivance; the Fuegeans employ a bone hook, although they are said sometimes to fish with a bait without a hook. Mr. Oldfield says, that the Watchandies of Western Australia have no knowledge of a hook for fishing, although they have a word to express such an implement, but that it is used by the natives of Shark's Bay, and the Murchison natives have been taught the use of it by Europeans†; but Angas‡ gives an illustration of a shell hook used by the natives of Port Jackson before European fish-hooks were introduced amongst them; they are also mentioned by Cook.§ Captain Cook believed the natives of Tasmania to

* p. 35.

† *Trans. Ethnological Society, New Series*, vol. iii, p. 274.

‡ "South Australia Illustrated," Plate 47.

§ "Cook's Voyages," vol. i, p. 264.

be ignorant of the use of the hook, but the opinion rests upon negative evidence only.* Hooks are used generally in the Pacific Islands.

The iron knife constructed of shipwrecked materials, called KAWNO-DA, or CHAW-DA, No. 21 (Pl. XIII), resembles the knife used by the Australians so closely that it would be difficult to determine to which country a specimen belonged. Its peculiarity consists in having in place of a handle, a small knob composed of some soft material bound round the base of it to preserve the hand from injury; the blade is single-edged and the back curved. The persistency of the type amongst the Australians is shown by some specimens exhibited, by which it is seen that the same form was used with stone, glass and iron, the iron ones being ground into the same form as their stone ones, and prepared for the hand in the same manner, and this has probably been also the case with the Andamanese implement.



AUSTRALIAN KNIFE OF GLASS.



AUSTRALIAN KNIFE OF IRON

It would be well to ascertain hereafter whether the Andamanese have any use for a boomerang, such as the Australian weapon, or that used and constructed of wood in Eastern Africa, or the rounder and heavier, but otherwise similar weapon, used by the wild tribes of India.

The mode of carrying children astride of the hip appears to resemble the custom of the Nicobar Islanders, and I believe the same method is in vogue in some parts of India, but I am not aware whether the sling, CHIP-DA, No. 25 (Pl. XIII), is employed elsewhere.

The practice of covering the body with coloured earths mixed with oil resembles that in use by the Australians and Fuegeans, and indeed most savage races have some reminiscence of such a practice, but the particular mode of covering the head and parts of the face with white when in mourning, ÔG-DA, No. 54, bears so close a resemblance to the Australian custom, that I have

* "Third Voyage," vol. ii, p. 41, "Pre-historic Times," p. 439.

placed side by side two drawings representing natives in mourning attire, one taken from a picture of an Australian woman in mourning in Angas's work,* and the other enlarged from one of the photographs now sent by Mr. Man, and described by him as the costume of mourning for the dead. To what extent this similarity of custom is to be regarded as evidence of social contact in times gone by may be a matter of opinion, but the resemblance certainly is very close.



AUSTRALIAN WOMAN IN MOURNING.
(*From Angas.*)



ANDAMANESE WOMAN IN MOURNING.
(*From a photograph.*)

The flakes, or rather chips of white quartz, TAWILMA-DA, No. 61 (Pl. XII), formerly used for shaving the head, and now replaced by flakes of glass obtained from the European settlement, No. 61a, are worthy of notice from their extreme rudeness, the small fragments scarcely presenting any evidence of design, such as bulb of percussion, by which had it not been for Mr. Man's description, we should recognise them as being of human workmanship. Certainly the majority of such chips, if scattered over the surface of our ploughed fields, would escape the attention of an experienced collector of flint implements, yet we see that they serve an important function in the hands of these people. The same applies to the Cyrena shells ÛTA-DA, No. 63 (Pl. XII), and the JÎRKA-ÛTA-DA, No. 64, which, though they might not escape the notice of a careful explorer of prehistoric remains, would certainly not be recognised as tools if found in the fields. Yet we see from the account here given of them that they serve the most useful purposes in this capacity without any addition of handle or preparation by grinding, and they are

* "South Australia Illustrated," Plate 51.

used in thatching, arrow making, planing, and ornamentation, as spoons for gravy, and indeed so useful are they for these and other purposes that some are always kept and carried ready for use.

We may learn, I think, an important lesson from this in our prehistoric researches, for it shows what important functions natural forms must have served in the infancy of the arts, and that it is not solely to the more finished flint tools that our attention should be turned, but to the evidence of the use of natural fractures of flints, shells, thorns, and other natural objects which may, and indeed must have preceded the employment of the more highly wrought specimens of tools and weapons. How much then is the prehistoric archæologist indebted to the descriptive ethnologist who will observe and record such facts for our information.

The boar's tusk, PÎLÎCHA-DA, No. 65 (Pl. XII), is another of these primitive implements which without any preparation or hafting is used by them as a much-valued tool in planing bows, paddles, &c. Such tusks are of constant occurrence amongst prehistoric remains in this and other countries, and have been frequently noticed by archæologists. Amongst the most notable of the discoveries in which they figure conspicuously may be mentioned those found by Dr. Schlieman at Hisarlik,* and now exhibited at South Kensington. The grinding at the point, however, which has sometimes led to the supposition that they were sharpened for use, has, I believe in the majority of cases, been made by the beast itself for purposes very different from that to which they were afterwards employed by man.

The sleeping mat, PÂREPA-DA, No. 22, resembles in a most remarkable manner the sleeping mat of the Kaffirs, one of which from my collection is exhibited for comparison. It was formerly in Mr. J. G. Wood's collection,† and is described by him in his "Natural History of Man." Although the stems in the African specimens are somewhat thicker, they are fastened together in the same manner, neither race having any idea of weaving.

In the use of the torch TÔG-DA, No. 66 (Pl. XII), for fishing, these people resemble the Nicobarians and the Australians.

The model of an Andamanese canoe, RÔKO-DA, No. 69 (Pl. XII), appears to me to throw some light on the question as to whether this or the outrigger canoe was the most primitive form. Dr. Mouat is of opinion that the outrigger must be of recent introduction in the Andamans, because it is not mentioned by

* "Troy and its Remains," by Dr. Henry Schlieman. p. 78-165.

† "Natural History of Man," by the Rev. J. G. Wood, M.A., vol. i, Africa, p. 227.

earlier writers; this, however, is negative evidence only. I have elsewhere stated* my reasons for thinking that the outrigger canoe is of very early origin, and that it is simply a survival of the raft, the hollowed canoe representing one of the beams of the raft dug out, the outrigger another beam reduced to governable dimensions, and the outrigger poles the cross beams by which, in its primitive state, the raft was held together. We now learn from Mr. Man that the canoe without the outrigger, of which No. 69 (Pl. XII) is a model, is only made in the South Andamans where iron adzes are procurable from the European settlement, and that elsewhere in the islands the outrigger is used; this appears to show that the disuse of the outrigger is a modern innovation dependent on the use of materials which the European settlement only is able to supply. It may be observed also from the model, that these vessels, hollowed out of light trees, *sterculiaceæ* are of the clumsiest construction, mere rounded trunks, without any keel, and, as might be expected from their construction, we are told by Mr. St. John and others† that they are constantly upsetting, which shows that the natives have not yet hit upon the expedients necessary to enable the vessel to sail alone without the aid of the outrigger; moreover, the distribution of the outrigger canoe is continuous all over the Pacific, Asiatic Isles, and Nicobars, extending to Ceylon and the east coast of India, the Andaman Islands and Pegu forming the most northern limit of its area of distribution; and it is unlikely therefore it should have reached the northern shores of the Andamans, and not have been introduced into the south, which is the nearest point of contact. Wherever the outrigger canoe is found, there social contact to a greater or less degree must have existed with distant islands where similar canoes are used.

Dr. Mouat says it sometimes takes them a week to fell a tree, and then after first rounding the outside the interior is excavated until the sides are not thicker than a deal bonnet box.‡ In Blair's time fire was employed for this purpose. The Andaman Islanders used the hollowed trunks of trees charred by fire as ovens for cooking their food,§ and I have elsewhere suggested that it was by this means savages first learnt to excavate their canoes.|| Dr. Mouat says that three sizes of paddle are employed for men, women, and children, but only one is shown in this collection.

* "Early Modes of Navigation," by Col. A. Lane Fox, *Journal Anthropological Institute*, vol. iv, p. 426-431.

† *Trans. Ethnological Society, New Series*, vol. v, p. 49.

‡ Mouat, p. 316.

§ Mouat, p. 306.

|| "Early Modes of Navigation," *Journal Anthropological Institute*, vol. iv, p. 408.

In the practice of preserving the skulls of their relatives, the Andamanese resemble the Australians. In both cases the skull is used for some purpose of utility, the Australians using it as a drinking vessel and the Andamanese, according to Mr. St. John* as a box to contain objects put into it through the spinal aperture. Dr. Mouat† says that this custom is prevalent amongst the Fuegians, but I am not aware on what authority the statement is made.

A custom which prevails in the ornamentation of their huts is mentioned by Dr. Mouat on the authority of the Brahmin Sepoy. Bundles of fish bones, turtles' heads, and pigs' skulls, striped crosswise with red ochre, are suspended ornamentally from the roofs of their dwellings. In New Guinea Sig. D'Alberty‡ speaks of a similar mode of ornamenting their dwellings by means of a trophy of skulls hung over the entrance; and Dr. Comrie,§ between East Cape and Astralobe Bay in New Guinea also describes the skulls of the pig, dugong, a turtle, hung over the entrances as an ornament and to attest the wealth of the owner by showing the amount of provisions he has got through. A similar mode of ornamenting the dwellings prevails in other parts, but I am unable to call to mind at present where I have seen it described.

It would be of interest to ascertain the reason for the exclusion of pigs' bones from among the list of animals whose bones are employed as necklaces, &c., for ornamental purposes. Does this arise from the recent introduction of the pig, or from any idea of the unclean animal having crept into their superstitions?

In their huts the Andamanese most nearly resemble the Australians and Fuegians, and they appear to be of the most primitive kind, in some cases mere holes in the sand sufficient for purposes of habitation.

The foregoing are some of the most salient points of resemblance which have struck me in comparing the arts of these islanders with those of people who may be considered to be their congeners in neighbouring or distant lands. Other connections will no doubt be pointed out by anthropologists who have examined the list itself, which is worthy of attentive perusal.

With their nearest neighbours the Nicobarese, those dwelling on the coast at least, Mr. Distant has already pointed out that they present no affinity whatever, either physical or social. The specimens of the implements of the Nicobarese now exhibited show them to be in a very much higher condition of progress,

* *Trans. Ethnological Society*, vol. v, p. 43.

† Mouat, p. 329.

‡ *Journal Anthropological Institute*, vol. vi, p. 215.

§ *Ibid.*, vol. v, p. 107.

and to have made some advance in metallurgy, the knowledge of which has probably been communicated by the Malays; if, in fact, the objects exhibited from the Nicobars are of home manufacture. With the exception of the almost universal harpoon (No. 8, Pl. XV), scarcely any of their implements present any resemblance to those of the Andamanese. Their houses are built on piles like the Malays, they bore the ear like them and fill up the aperture with a piece of stick (No. 19, Pl. XV), their pottery (No. 1, Pl. XV) is of a superior quality to that of the Andamanese, and as Mr. Distant has already told us, it is made in the Chowra Island only; * their fish spears (Nos. 3, 4, and 7, Pl. XV), resemble some of those used by the Malays, but used also in most of the islands except the Andamans, so far as we know, and their ordinary spears (Nos. 2, 9, and 10, Pl. XV), have a general resemblance to Malay spears. The two people, judging by the photographs that are exhibited, also appear to resemble one another. It must be borne in mind, however, that these Nancoury people are not the aborigines of the islands, who are to be found in the interior of Great Nicobar under the name of Shobœngs, of whom little or nothing is known, and it is with these probably that connection with the Andamanese may hereafter be traced.

In so far as my examination of this valuable collection enables me to form an opinion, there is nothing in the implements of the Andamanese which would lead us to differ from the conclusions arrived at on grounds of physical constitution or language. With Professor Owen we may say that we cannot with certainty connect them with the aborigines of any continent. With the linguistic researches of Mr. Man and Lieutenant Temple we are in agreement, when we assume that their nearest representatives are the Australians. There is something more than a general resemblance, I think, in some of the tools and customs of these two races, whilst between them and others in a similar stage of culture a general resemblance can be traced, leading to the inference that from whatever region the black races of mankind may originally have diverged, they may have carried with them the rudiments of the simplest arts.

If we were in possession of as much detailed information about the tools and weapons of other savages as Mr. Man has given us of those of the Andamanese, and which being the first-fruits of our Anthropological Notes and Queries, the Institute ought I think to be especially congratulated upon receiving, our means of comparison would be greater. If travellers generally had paid as much attention to these details of their simple

* Mr. Distant on "Our knowledge of the Nicobarians," *Journal of the Anthropological Institute*, vol. vi, p. 213.

arts as they have paid to their monstrous religious beliefs and rites,—beliefs and rites as little understood for the most part by the people who practise them, as those by whom they are recorded,—we should possess more reliable data with which to trace out the early history of mankind.

If, however, the resemblance in the forms of implements to which I have drawn attention is not admitted as evidence of social contact, then with all deference I submit that such evidence is not likely to be found in the study of words. Words are subject to variations arising from defects of hearing, memory, and other causes, from which the arts are exempt. Admitting that the structure of a language will survive after the last vestige of its roots have disappeared, it must yet be affirmed that in a low condition of culture, languages, for the reason above stated, change more rapidly than the arts. As civilization progresses, these two branches of human culture reverse their positions; the arts develop more rapidly whilst language tends to become fixed. The truth of this is exemplified by the collection before us, where it is seen that many of the forms of implements are said to be the same throughout the Andaman tribes, whilst the language has changed so greatly that men of different tribes are unable to converse with one another.

CLASS—DESCRIPTIVE ETHNOLOGY.

Extract of Letter from E. H. MAN, ESQ., to his Father, COL. MAN.

“PORT BLAIR, 28th May, 1877.

“My trip, as my last letter to you led you to expect, took place from the 5th May. I returned on the morning of the 10th. It was a fair-weather trip the whole way, the monsoon being very late this year, commencing on or about the 20th inst. On leaving Ross we passed through Manners Straits (i.e., between Rutland Island and the Cinque Islands), and, passing within a few miles of North Centinel, where I so much wanted to land, we landed at 5 P.M. in Port Campbell, my first visit there. Seeing two canoes full of junglees, I went to them without delay, so that we might have a jaw with them before it got dark. We found that there were nine of them, and they were turtling. One of your old Ross Orphanage boys (Nicholas) was of the party. They had caught one or two turtles. I gave them a lot of necklaces, &c., and as they told me that there were a number more of them in an encampment farther in the harbour, I told them to go back to their friends and bring them during the night to an old camping ground which I noticed, and pointed out, within a mile of the ship. I told them if I saw them there at day-

break I would land and give them a lot of presents and plant some fruit trees. They promised, and did not disappoint me. So the next morning I went on shore and performed my part of the promise. I found a number of women and children as well as men. One of them was recovering from the measles; so I collared him, as I found he had only just joined them, and they may now have escaped the infection, which if he had stayed with them they could not have done. It appeared he got the measles from the 80 who ran away from Brigade Creek. He told me that four or five had died of that lot, but that the rest had recovered. I took on board four other men from this place, three of them as they required feeding up and medical treatment as well, and the fourth because I took a great fancy to him as he was willing to come. I ought to have mentioned that I left Ross with 33 junglees. On leaving Port Campbell we went to Bārākābil, a village a little south of Flat Island (west of Mid-Andaman) where I landed ten men and women and one child. This is the finest encampment I have ever come across, and I was anxious to revisit the place, as in March last year I had planted a lot of young fruit trees there. I found my old plantain trees had been left undisturbed and doing fairly well, but they are evidently in want of more sun than they get in the small clearing (say 80' x 80') in which they are situated. The pine-apples were all right and beginning to bear, but the cocoa-nuts had all been rooted up either by the junglees themselves or pigs. As I brought only sprouting cocoa-nuts this time I am in hopes that as they contain little worth eating they will be left undisturbed. The papayas were doing well, and I planted others, besides limes, tamarinds, and guavas. I left a great number of presents of all sorts, including rice, tobacco, pipes, matches, beads, looking-glasses, tin pots and pans, cloth and clothes, files, bottles, &c. There was the usual heartrending scene of crying on the meeting the eleven and their old friends. The latter appeared very grateful to me for not having kept their friends for ever and aye, as I had the power of doing on getting them into my clutches. They will, however, find out before long that we consider it is they who are supposed to benefit by a residence at P.B. The fact of the matter is that the benefit we derive is that in case any ship is wrecked on their coast, they are far more likely to treat the unfortunate people on board with humanity from knowing our power to punish and our friendly feeling towards them, and the certainty of a reward for good conduct, than if left in ignorance of our existence and of our power to punish and reward them. There can at the same time be no doubt that they enjoy much better health and are in much better condition as a rule in the jungle than those we have at our homes. Of course there are some as fine specimens among the latter as could be found in the jungles and they get much more intelligent, but certainly less virtuous and truthful from having to mix with the convict-prison officers, &c.

"It is delicious to come across a true jungle, one I mean who has never yet had anything to do with us, and find how ignorant he

seems of the art of lying or prevarication, and generally even after they have picked up the habit, it is practised in such a manner that it is easy to detect them, but sometimes it is only intended as a joke and to show how clever they are.

"What could have led me to make such a digression? After an affecting farewell, especially from one Chána Mébola, a pretty young married woman who came running out to give me one last 'good evening,' we started off in order to return to the ship before dark. There were a lot of junglees making for Bārākābil as we were leaving, they having received intelligence of our visit while we were there, but we could not stop to see and speak to them. Before leaving I had cut my initials in a tree at the entrance to the encampment. As King the captain of the 'Enterprise' had, by taking a circuitous route in order to avoid possible shoals, taken half a day longer in doing that distance than I had reckoned on, I was obliged to forego a visit to Interview Island and so we kept under way the whole night, and at day-break found ourselves off the northern point of the Andamans and in sight of the southern islands of the Cocos. At 10.30 we entered my favourite harbour Port Cornwallis. There at the very entrance I caught sight of a party of junglees fishing. So I got King to 'ease 'er' off the mouth of the harbour while I proceeded on shore to communicate with the natives. I took the two Sound Islanders and others belonging to Mid-Andaman and a lot of presents and two dogs. These were held up by junglees at the bows with the usual result (not usual however at Port Cornwallis), but now I am hopeful that they are on a fair way of becoming quite friendly towards us. But I must explain what occurred: Two junglees ventured out on seeing the boat approach the shore. They shouted and I made the Sound Islanders listen and reply, their dialects being happily somewhat similar, or at any rate fairly intelligible to each other. I got Chipla to inform the two gentlemen that we intended landing, not where they were (on a reef) but at a sandy beach about a quarter of mile off, and if they wanted presents they had better swim off to us and save themselves the trudge over the rocks. One of them did not hesitate, but pluckily plunged in and soon boarded us. Now this was a great stroke, as he of course knew that by doing this he had placed himself entirely in our hands, and we might have brought him away to P.B. I, however, covered him with presents; and how he stared at the various types of the genus homo with whom he found himself surrounded in the boat! Besides the Hindoostani and Madrasi (old boatmen of mine), there were a Punjaubi, the Lascars, a red-bearded officer of the 'Enterprise,' and myself, and of course also our junglees. Chipla told us that this man (who proved to be an elderly individual) was a (or the) chief of the place, and he apparently was so from the air of superiority he assumed. We took him to the sandy beach, and the other man met us by walking round. I then did this, I gave the old chief into Rêo's charge, with instructions to fetch out those who were hiding in the jungle, and I sent Chipla (the other Sound Islander) with the other man in an opposite direction, as they said

there were some there. Meanwhile I set to work planting cocoa-nuts. Rêo took one of the dogs with him, but did not return with it, so perhaps the young monkey gave it to some junglees he may have met. However, he and the chief returned saying either that there were no junglees in the direction they had gone, or that they funked coming to us. Chiplâ's man after going a long distance with him slipped into the jungle, Chiplâ said in order to bring out some who were close by, but Chiplâ on the former trip played us false by telling them that we were going to make away with them, and it was owing to their making a bolt which led Ahmed to seize hold of one of them and struggle with him in the way I related to you at the time; and so it may be that Chiplâ played us the same trick this time, the only thing against it being that, on the former occasion, he knew nothing about us, having only been with us for one day, whereas he had on this second trip been with us for over five months, had been successfully treated by Reed for a tremendous spleen which he had contracted in his own home, and had been carefully nursed through the measles, &c. However, though I waited for twenty minutes his man did not return, so I gave the old chief some more presents, although he declined to accompany us to the steamship. We then landed at an old place about two miles distant where I had gone on my former trips and left a lot of presents there, and then we went to Chatham Island, where we saw two boys who bolted, and our two Sound Islanders failed in coming up with them. I left presents in a hut at the south-west corner of the island, which is about one and a half mile long and I went to Blair's old settlement (north end of Chatham Island) and did the same there. At both places fruit trees were planted. The following morning we started off at daybreak. The party at the entrance of the harbour mustered in strong force, and, judging by their gestures, wished us to land there, but the ship was then going full speed and stopping was out of the question. I fully believe that if we had stopped and landed they would all have remained there and given us a friendly reception. On these trips I take care not to fire off a gun, even though a tempting shot at a simple curlew or pigeon may present itself, as of course the junglees within sound of the shot would at once conclude that some poor friend of theirs was being disposed of, and I got King and his officers to abstain in like manner. We arrived at Sound Point about nine, and we proceeded at once to Mèôpông, the village at which Tôngla and Chànga live. We found to our disappointment that there were wreaths hung up at the entrance to the encampment. These festoons indicate that a death has recently taken place at the encampment in question. Our two Sound Islanders of course looked very glum on seeing this, as they must have wondered which of their friends had died during their absence. They said they would beat up the neighbouring encampments, and bring some friends to see us. Meanwhile we filled the huts with presents amongst which were twelve fowls and a pair of dogs. We planted a lot of cocoa-nuts and other fruit seedlings in the small clearing and waited half an hour, but as the men did not return,

evidently finding the nearer encampments also deserted, we were obliged to leave, having to anchor off Middle Button at five. We consequently failed in seeing our old friends Tôngla and Chângá, and in fact anyone. However, we had anchored at a corner of the Sound and only landed at one place. To give all the natives of the place a chance of knowing of one's presence one must remain at anchor for at least a couple of days, and in some conspicuous part of the harbour. When they come to know us better we shall no doubt find it best to fire off one or two rounds from the ships, or 16-pounders, to tell of our arrival in their midst. There being time for landing at Middle Button, I went ashore with King and Fern, and planted some cocoa-nuts. The island is a perfect gem of a place, and as King remarked, capitally suited for a picnic. There was a nice clearing near a sandy beach, on which we found some temporary Andaman huts, and close by some papaya trees, the male kind only having been stupidly planted, which showed that some former trip taken (probably Hamfray) had tried to do something for the jungles. It appears that the captain of some vessel was buried there some ten years ago, but we could not see any signs of a grave, but the time and tide did not allow of our examining the whole island.

"The next morning we steamed to Strait Island, and from there I sailed to the Andamanese "Garden of Eden" (Wotâ emida).^{*} It was a thundering long pull, and if I had not taken my two convict pullers, goodness knows how long the lascars would have dawdled over the distance. The wind was very light, and came on every now and then so provokingly that it afforded us little or no assistance, as we had to drop pulling when trying our luck with the sail. When we got to the famous rock where their Adam and Eve lived what do you think I found? I wish I could describe it geologically. At any rate I made out that it was a large piece of sandstone, perhaps 80' in diameter, situated on the shore of a large shallow sheet of water which is enclosed almost entirely by the closely adjoining island and the mainland (on which the stone itself is lying), and the wonderful inscription consisted of nothing more or less than deep incisions caused apparently by the action of the sea, but as the water did not appear to be more than 6 feet deep for a considerable distance from the shore, and the bay itself was evidently too sheltered for the sea ever to dash on the shore with any degree of force, I cannot be sure that this can account for the appearance and condition of the rock. This is also apparently the reason why the jungles attribute such deep incisions to their Adams penknife. It may be that in former days this rock was not so high out of the water as it now is, and yet some say these, like other coral islands, are subsiding.

In one place a small archway had been formed at one end of, and through, the rock, just like such as one finds occasionally at home on some weather-beaten coast. I suppose they regard *that* as

^{*} See *Journal of the Anthropological Institute*, vol. vii, p. 106.

the full-stop of the inscription. I must confess I was disappointed, but still it was something to have seen the place which they (South and Mid Andamans) regard as the scene of the Creation, and consequently as a sort of sacred spot. Near by, were other stones similarly marked, which are in like manner believed to have been so marked by Tawmoda.

"We came across no less than five canoes full of junglees who greeted us, and who were rewarded with presents, which these people value more than anything. We left a man and his wife who had been with me for a year, and brought away three men and a boy, after landing at their village and planting a number of fruit seedlings. We then proceeded to the Archipelago where I have never before been; unfortunately the ship could not enter the passage in which the junglees said we were sure to find a large number of 'Balawas,' and so we proceeded further south to a point which King said he had visited a few years ago. I had unluckily got touched up by the sun in my long morning's pull to Wôtæmida, and so was quite unfit for further exposure to heat. There were no junglees where they landed, and so the landing party amused itself in shelling and shooting duck. The next morning, however, we saw the smoke of an encampment, within 1,000 yards of where our party had landed, and if we had not arranged to return to P.B. before 11 A.M. we should have landed and paid the people a visit. They had apparently turned up during the night after 'shikaring' all day, and had up to that been ignorant of our presence, their encampment being some 50 yards inside the edge of the jungle.

"The coloured cloths hung up in conspicuous places about the shore, would soon, however acquaint them with the fact of our having been recently there, and these cloths were of course placed over small bundles of presents, which would otherwise perhaps have remained unnoticed until they had been completely destroyed or damaged by the approaching rains.

"I believe nothing I have done has so impressed these people of South and Mid Andamans as bringing down the four Sound Islanders, Tongla, Chànga, Chiplâ, and Rêo. They were fully of opinion that the people of North Andamans and Little Andamans were cannibals. They of course now know that the former differ but slightly from them in *anything except their language*;* and they are consequently prepared to find themselves in like manner agreeably surprised regarding the latter when the good day comes for making up to them. The more I see of these people the more convinced I am that the plan I have adopted from the first is the correct one, viz., of not courting a meeting all at once, but to commence by leaving presents, and to show no anxiety to get them to 'come here,' which they naturally interpret into a desire to carry them away as slaves, or may be as food for a feast. And it would never do to take away less than two (and those only of their own free will, and for a short period which

* The italics are mine. A. LANE FOX.

should be explained to them, by pointing to the moon and showing two or three fingers as the case may be), lest one should pine away or die from any other cause, and none remain to explain this to his friends."

Extract from a Letter from Mr. E. H. MAN, to his Father, COL. MAN, dated 26th June, 1877, relating the Epidemic of Measles in the Andamans.

With regard to the measles epidemic, the number of deaths at Viper out of nearly 200 junglees, for I fetched as many as I could here to be treated, was 53, and, as far as I can ascertain, there have been 40 or 50 deaths in the jungle out of perhaps a similar number (200) of persons attacked, but I am still making inquiries on the subject, and hope to learn how many were really attacked in that jungle, and how many died. It is no easy matter to arrive at even approximately correct conclusions on such points, as the people are so scattered and few in number, and can give no assistance, as they cannot count, or state positively when or how many died, and they of course only mention those whose recent death they recollect, but the general impression is that this unfortunate epidemic has carried off about 100 out of, say 500 attacked, and it is more than probable that the infection will go on spreading till it reaches the northern tribes. The only people who have escaped from being infected among our neighbours are the Port Mout party, numbering some 60 or 80, and now there is scarcely any need for us to continue to look after them, as all their surviving friends of South Andaman have now recovered, and can no longer convey the infection to them.

List of ANDAMANESE AND NICOBARESE IMPLEMENTS, ORNAMENTS, &c., presented to MAJOR-GENERAL LANE FOX by E. H. MAN, Esq., and thus described by Mr. MAN, 18th September, 1877.

ANDAMANESE OBJECTS.

1 Bow as used by all the tribes except those of North and Little Andaman (4 specimens sent), "Kârama-da." Pl. XIV.

2 Bow as made for the use of their children (2 specimens sent). Pl. XIV.

3 Bow as used by the tribe inhabiting Little Andaman and adjacent islets and by the offshoots of the same tribe occupying parts of South Andaman, with arrow. Pl. XIV.

4 Bow as used by the North Andaman tribes (a) (b) (c). Pl. XIV.

5 Arrow for killing pigs (Ela-da) as used by all the tribes

except that of Little Andaman. (For specimen of Little Andaman pig-arrow, *vide* No. 3, to which one is attached.) Pl. XIV.

5a Arrow of different pattern, called Elâka lûpa-da.

6 Arrow used for shooting fish and sometimes pigs, "Tawl-bôd-da." Pl. XIV.

7 Arrows used for shooting fish when Tawl-bôd's are not available. It is also sometimes used as a weapon in their quarrels. (Tirlêd-da.) Pl. XIV.

8 This is merely the "Tirlêd" arrow with the point unsharpened. It is sometimes used thus when practising at an object, but more frequently for conversion into a "Tirlêd" Rata-da. Pl. XIV.

9 This is not used as an arrow, but is only used as an ornament; but few are met with. Châm-da. Pl. XIV.

10 A fish-arrow made by a native of North Andaman (*v.* ticket No. 6).

11 A fish-arrow made by a native of North Andaman (*v.* ticket No. 7).

12 Spear for killing pigs used by all the tribes except North and Little Andaman (Erdûtnga-da). Pl. XIV.

13 Adze (Wôlo-da). This is the most common and useful implement used by the Andamanese. With it they make their boats, bows, pails, dancing-boards, &c. Pl. XIII.

14 Pail (Dâkar-da) scooped out of one piece of wood, as used by all the tribes except that of Little Andaman. Pl. XIII.

14a Pail as used by the Little Andaman tribe. One child's specimen included.

15 Sounding-board (Pûkûta yemnga-da) used in keeping time for dancers. The pointed end is stuck into the ground and a stone placed underneath. Pl. XIII.

(N.B. Larger specimens are generally used, but a small one is sent to suit the size of the packing case.)

16 Tray (Pûkûta yât maknga-da), used as an eating-dish, &c. Pl. XIII.

17 Basket (Jôb-da) as used by all the tribes for carrying food and sundries. The people of Little Andaman make a much larger description. (A specimen of a small North Andaman one is also enclosed). Pl. XIII.

18 Kûd-da, is the name given to the hand fishing-net. It is used by the women who catch small fish in streams and among rocks on shore by its means. Pl. XIII.

19 Cooking-pot (with basket cover in which it is carried), called Bûj-da. Similar descriptions are used by all the tribes. Pl. XIII.

19a A specimen found in a Little Andaman encampment is

enclosed. 19b Also some broken pieces found in a "kitchen midden" in Port Blair Harbour. See Pl. XVI.

20 Nautilus shells (Ôdo-da), used as drinking vessels. Pl. XIII.

21 Káwno-da (also called Chaw-da), knife (with sometimes a skewer attached), used in cutting up food. Pl. XIII.

22 Sleeping mat, called Pârêpa-da.

23 Fan-like screen (Kâpa-jât-nga-da) made by sewing together the large leaves of the Kâpa. It is used not only as a sort of umbrella to protect them from rain and sun (when oppressively hot) but for wrapping up bundles of food, the clays, and red oxide of iron (used for painting the person), personal ornaments, &c., and they often use it in place of dry leaves for sleeping on in the absence of a Pârêpa (v. 22 above).

24 The turtle-spearing apparatus. The iron spike is called Kôwaia-da, the line Bêtma-da, and the long bamboo handle (often 18 feet or more long) Tagw-da. When in use the Kôwaia is fixed in the tawg and the bêtma is held in the hand. When the turtle is struck the tawg gets disconnected and floats, and is recovered after the turtle has been captured. Pl. XIII.

25 Sling or belt (Chíp-da) worn like a sash by men and women in carrying children. Pl. XIII.

The plain ones are called .. Chíp-lûpa-da.

The ones ornamented with netting .. Chíp-râb-da.

The ones ornamented with shells .. Chíp-yâmnga-da.

26 Pinna shells (Chîdi-da) used as eating-plates and for holding clay (v. No. 55) for ornamenting the person. Pl. XIII.

27 Waistbelt provided with a tail of leaves (Bôd-da) made from the leaves of the young Screw-pine (*Pandanus*). This description is worn by women and girls. They are invariably worn, as it would be considered indecent to appear without one. 3 plain and 2 ornamental ones are enclosed, also 2 North Andaman specimens. Pl. XIII.

28 Waistbelt, as worn by men and boys (also called Bôd-da). 4 specimens are enclosed.

29 Waistbelt (Rô-gûn-da) made from the leaves of the young Screw-pine (*Pandanus*). It is worn by all adult women and no others. 5 specimens are enclosed; also one from North Andaman. Pl. XII.

30 Garter (Tâchawnga-da) worn by men and boys, made from the leaves of the young Screw-pine (*Pandanus*).

31 Bracelet (Tawgo-chawnga-da) worn by men and boys, made from the leaves of the young Screw-pine.

32 Chaplet (Ijî-gônga-da) worn by both sexes.

33 Nets (Chápanga-da) in which odds-and-ends are kept. Pl. XII.

34 (Râb-da) worn by both sexes as chaplets, necklaces, armlets, &c., both as an ornament and in sickness. 1 North Andaman specimen enclosed. Pl. XII.

35 Ornamental waistbelt (Garen-pêta-da), worn by both men and women occasionally. Pl. XII.

36 Ornamental shavings (Garen-len-pîd-da) so called because (alive or dead) children's hair is interweaved in it, worn by both sexes.

37 Long shavings of a soft wood called Ûj-da, made by means of the sharp edge of the Cyrena shell. These shavings are held by members of both sexes in their hands when dancing, and are also sometimes stuck in their waistbelts and chaplets as ornaments on those occasions. (7 bundles.) Pl. XII.

38 Yâdi-ta-da {necklace and
chaplet} of turtle bones. Pl. XII.

39 Baian-tâ-da " wild cat.

40 Dûhû-ta-da " iguana. Pl. XII.

41 Pêr-tâ-da " cane, wood &c.

42 Ina-awla-tâ-da " fresh-water shells. Pl. XII.

43 Bêwa-tâ-da " red coral.

44 Râta-awla-tâ-da " sea-water shells.

45 Rêkêto-tâ-da {necklace, chap-
let, waistbelt and
bracelets.} Hemicardium. } Pl. XII.
Unedo shells. }

The above are worn by both sexes round head or neck as ornaments only, and not like the Châûga-tâ (*v.* ticket 46), in order to cure pain, &c. (*v.* also No. 73).

N.B. (Pigs' bones are never used for such a purpose.)

46 Châûga-tâ-da. Necklaces, chaplet, waistbelt and bracelets of bones of deceased friends or relatives worn when sick round parts in pain. Pl. XII.

47 Resin (Rim-da) obtained from a large jungle-tree of that name. For description of use, *v.* ticket No. 50. (In glass jar.)

48 Wax of the white honeycomb (Âja-pîd-da). Besides being employed in the way described in ticket No. 50, it is used in the manufacture of the "Châpanga" (*v.* No. 33), and the "Kud." (In glass jar.)

49 Ûpla-da. This is some of the Koi-ôb-chûlûnga-da (*v.* ticket No. 51) after it has been baked in the fire. For a description of its use *v.* ticket No. 50. Besides being employed in the manner there described it is principally used in the manufacture of Koi-ôb-da (*v.* ticket No. 52). (In glass jar.)

50 Kângatâ-bûj-da is a hard reddish wax composed of the substances noted below.* When required for use, the pot in

- | | | |
|---|----|---|
| * 1 Rim-da, <i>v.</i> ticket No. 47 | .. | } If of these Ûpla-da is not
ready to hand, "Koi-ob"
(<i>v.</i> No. 52) is used instead. |
| * 2 Âja-pîd-da, <i>v.</i> ticket No. 48 | .. | |
| * 3 Ûpla-da, <i>v.</i> ticket No. 49 | .. | |

which it is kept is placed on a fire. As soon as the wax is melted it is applied as may be required. It is used on the string fastenings of fish and pig arrows (*v.* tickets 5 and 6), on the Kôwaia (*v.* No. 24); on the Dâkar, both inside and out (*v.* No. 14); on the* Pâkûta-yât-maknga (*v.* No. 16); on the Êr-dûnga (*v.* No. 12), and the* Ôda-da (*v.* No. 20). Pl. XII.

It is applied only by way of ornament to the outside of the "Dâkar," and to those marked with * in the above list (in native pot).

51 Koi-ôb-chûnga-da. This is obtained from mineral springs (red oxide of iron), which are fairly plentiful in these jungles. This specimen has been dried in the sun. When baked on the fire it is called "Upla" (*v.* No. 49). It is applied in its liquid form, as found, to sores on the person, and when suffering from fever, and is drunk as a cure for coughs, fevers, &c. It is often kept dried for convenience, and then, when required for use medically, water is added, but a fresh supply is preferred to this. (In glass jar.)

52 Koi-ôb-da. This is made by mixing "Upla" (*v.* No. 49) with some greasy substance such as the fat of the pig, turtle, iguana, dugong, or the oil of an almond called "Êmej-da." This red preparation is applied to the person either ornamentally or otherwise. It is believed to be efficacious in sickness. The nostrils and centre of the upper lip are occasionally painted with it, as the smell of the fat is agreeable to them. From the mode in which it is applied it can be readily determined whether the wearer is sick or rejoicing. Before a corpse is removed for burial it is smeared over the face and neck with this paint as a mark of respect, and in order to please the departed spirit. (In glass jar.)

53 Chûnga-da. This blue-black clay is found in small springs in the jungle. In its liquid form it is drunk as a cure for coughs, fever, and aches in the body, head, limbs, and it is applied to sores or parts in pain. It is sometimes kept dried for convenience (*v.* also ticket No. 51). (In glass jar.)

54 Ôg-da. Lumps of this clay are found somewhat plentifully in the jungle. It is used, mixed with water, for smearing over the body when hot. Lumps of it are placed on the head and forehead as a symbol of mourning, and kept there often for some months. It is also sometimes used ornamentally on the person by smearing rough patterns with it by means of the finger tips. (In glass jar.)

55 Tâla-ôg-da. This is not so plentiful as the "Ôg" When required for use it is, like the Ôg, powdered and mixed

with water. It is applied ornamentally except when mourning. The painting is done by the women who spare no pains in executing, by means of their finger nails, neat designs on the persons of their friends and relatives. It is also sometimes applied ornamentally to their bows, baby-slings (*v.* No. 25), baskets, trays, sounding-boards, pails, &c. The women when enceinte occasionally eat small quantities of this clay. (In glass jar.)

56 Tâlag-da. Sharpening stone. With this they sharpen all their iron implements. Pl. XII.

57. Râ-da. Bark of a creeper. This is not very plentiful. It is used in making an ornamental cord (*v.* specimen sent) for wearing round the waist. It is also sometimes used interwaved with the fibre of the "Âlaba" (*v.* No. 58), for the same purpose. It is also occasionally interwaved with the fibre of the "Yôlba" (*v.* No. 59), in order to make ornamental fastenings for arrows, necklaces, Kôwaia (*v.* 24), &c.

58 Âlâba-da. This is obtained from the bark of a tree of that name. It is used in making rope (Bêtna, *v.* No. 24); turtle-net (*v.* No. 60); necklaces, anchor-rope, bundle-fastenings, &c. It is also used in carrying the "Jôb" (No. 17), which is suspended from the head by the women, and from the shoulders by the men. From the bark the "Chíp" (No. 25) is made.

59 Yôlba-da. A creeper. This is the most valued and valuable fibre in these jungles. It is used in the manufacture of their bow-strings, arrow-fastenings, the "Râb" (*v.* ticket No. 34), "Châpanga" (*v.* No. 33), the fastenings of their necklaces and other personal ornaments, also on the "Kôwaia" (*v.* No. 24), and "Kawno" (*v.* No. 21). [A specimen is attached of the string made by them from this fibre.]

60 Yawto-têpinga-dâ. This is a specimen piece of a turtle-net made from the "Âlaba" fibre (*v.* No. 58). [A whole net would occupy considerable space, so a specimen is sent.] Pl. XII.

61 Tawlma-da. These flints (white quartz flakes) were in former days valued by them as they had no other material with which to tattoo or shave themselves. Nowadays they always perform these operations with glass, which they of course obtain from us without any difficulty. 61a flakes of glass as made and used by them for the above purposes. (In two glass jars.) Pl. XII.

62 Pilita-da. (A creeper.) This is found in greater quantity than the "Yôlba" (*v.* No. 59). It is not sufficiently strong to serve for arrow-fastenings, &c., though, on an emergency, it is occasionally used for such purposes. It is principally used in manufacture of the "Kûd" (*v.* No. 18), "Pârêpa" (*v.* 22), &c. [A specimen of the string made by them from this fibre is

enclosed, and the bundle itself is fastened with some of this string.]

63 Ūta-da. (*Cyrena* shell.) Of this and the "Jirka-ūta" (v. No. 64) they make great use. They prepare the fibres for use by their means and use them as knives for cutting thatching leaves; the "Ūj" (v. No. 37) is made with them. Arrows are dressed and prepared with these alone. The ornamental incisions on the bow, paddle, &c., are executed with them and they are employed for planing purposes, also in sharpening the "Pilicha" (v. No. 65). They are also used as spoons in eating the gravy of pork, turtle, &c. So useful are they, indeed, for these and other purposes that some are always kept and carried ready for use. (In glass jars.) Pl. XII.

64 Jirka-ūta-da. (Another kind of *Cyrena* shell.) For mode of use, *vide* No. 63. (In glass jar.)

65 Pilicha-da. The tusk of the boar. These are used for planing their bows and paddles, and are much valued by them, as they answer this purpose (in *their* hands) admirably. Pl. XII.

66 Tôg-da. This is the torch used by them when dancing, fishing, or travelling at night. The leaf used is the same as that of which the "Kâpa-jâtnga" (v. No. 23) is constructed. The resin is that which they obtain from a large tree called "Mai-i-da." [Their best canoes are often made from "Mai-i" trunks.] Pl. XII.

67 Lâpi-da, used as torches. These pieces of wood are taken from the heart of rotten logs of the Gurjon tree (*Dipterocarpus lœvis*), called by the Andamanese "Arain-da." As these do not burn so readily as the "Tôg" (v. No. 66) they are rarely used outside their huts.

68 Tôbûl-pîd-da (also called lêrê-da). This is the wax obtained from small black honeycombs, which are constructed by a small description of bee in the hollows of trees. The honey is eaten, but is not so much relished as that of the white honeycomb (v. No. 48). This wax is used for applying to bowstrings and in the manufacture of the "Kûd" (v. No. 18), and to "Yôlba" strings, when employed in the manufacture of arrows, &c., and it is used for caulking leaks in their canoes and pails. (In glass jar.)

69 Rôko-da. Model of Andamanese canoe, often large enough to hold 30 persons. These are only made by the natives of South Andaman and the adjoining tribes to the north and east. The more distant tribes, from the difficulty they experience in obtaining iron, have to content themselves with making small outrigger canoes which are rarely able to carry more than four persons. (1, and 3 paddles). Pl. XII.

70 Wâligma-da paddle. Pl. XIV.

71 *Âra-da*, made by splitting the young leaves of the cane, and used for hanging in festoons round the spot where some one has just been buried (or "machân'd") in order to warn off any one who may inadvertently approach the spot which is supposed to be haunted by the spirit of the deceased. After some months, on the return of the party to the spot, the remains of these leaves are burnt. [This specimen is tied round with string for convenience of packing.]

72 *Taili-bana-da*. Stone hammer, used principally in beating out iron for arrow-heads, &c. Pl. XII.

73 *Ngâtia-tâ-da*. Necklace and chaplet made from the fruit of one of the various descriptions of the mangrove tree. Pl. XII.

74 *Ôbûnga-da*. This name is applied to the leaf which serves as a small apron to the women to hide their nakedness. They generally use these leaves (viz., those of the *Mimusops Indica*), which they suspend about three or four thick from the front of their "Bôd" (v. ticket 27). (1 packet.)

75 Specimen of Andamanese hair, cut from the heads of some men. It is rare to see them with longer hair than this. The women always keep their heads closely shaven. (1 packet.)

76 Specimen of arrows used in former times when iron was difficult to obtain. The pointed (fish bone) kind inflicts a wound which, it seems, generally, if not always, produces a bad ulcer, necessitating amputation. This may possibly account for the erroneous belief which was entertained by some in former times that these people applied poison to their arrow-heads. [These arrow-heads being very brittle had generally to be renewed after each time of being used]. Pl. XII.

77 *Pidga-da*. The cane which is used in making baskets (v. ticket No. 17) and in repairing cracks in their canoes by stitching over the crack, and covering the seams with "Tôbûl-pid" (v. No. 68). It is also used in the manufacture of the "Tawg" (v. No. 24) and "Wôlo" (v. No. 13), and in carrying the "Dâkar" (v. No. 14) suspended from the head or shoulders.

78 *Rîdi-da*. The reed used in the manufacture of some of their arrows (v. tickets 6, 7, and 8).

79 *Jîni-da* (*Epicarpurus orientalis*). When engaged in gathering honey they smear themselves with the sap, which is obtained by chewing. A fine spray is also squirted from the mouth towards the bees, who are driven off by the smell, which is particularly obnoxious to them, and they do not venture to attack those whose persons are smeared with the sap. On the occasion of a honey feast-day, the fibres of this plant are tied round their limbs. The juice is sometimes swallowed as a cure for coughs. (1 bundle.)

80 Pail-da (*Mytilus smaragdinus*). This is one of the shell-fish which they ordinarily eat. (3 in glass jar.)

81 Kârada-da (arca). This is one of the shell-fish which they ordinarily eat. (4 in glass jar.)

82 Ū-da (cyrena). This is one of the shell-fish which they ordinarily eat. The larger is called "Pail-ū-da" (v. also ticket 63). (4 in glass jar.)

83 Yôlba-da. The Creeper. (v. ticket No. 59). (4 in bundle.)

84 Piltta-da. The Creeper (v. ticket No. 62.) (4 in bundle.)

85 Âlaba-da. A portion of the tree from which the bark is stripped (v. No. 58).

86 Bawro-wa-da. Bunches of these leaves are held and swung violently up and down while dancing by young men and women, when they commence to break their fast of turtle, pig, &c. on reaching puberty. A feast and dance take place on such occasions, when often large gatherings occur. (1 bundle.)

87 Reglâkâ-châl-da. Bunches of these leaves are held and swung violently up and down while dancing by young men and women, when they commence to break their fast of turtle, pig, &c. on reaching puberty. A feast and dance take place on such occasions, when often large gatherings occur. (1 bundle.)

88 Gûgma-da. The leaves of this plant are deemed very efficacious in cases of fever. They are rubbed on the person of the sufferer, who at the same time lies on a quantity of them, and sniffs pieces of the leaves. (1 bundle.)

89 Bérébig-da (1 bundle). } These are used like the "Gûgma"

90 Chêtra-da (1 bundle). } (v. No. 88), but not to the same

91 Chawra-da (1 bundle). } extent.

[There are a few more varieties of leaves which are less commonly used by them in the same way and for the same purpose].

STRINGING THE BOWS.

In order to string the *common bow* (v. ticket No. 1), first twist the string till it becomes stiff, then, placing the point of the concave end of the bow on the ground, *slowly* bend the bow by means of the knee, while the other end of the bow is held in the left hand. When sufficiently bent, slip the noose of the twisted string over the notch. During this operation the bow should not be held too erect. The convex end, held in the left hand, should be about $3\frac{1}{2}$ feet above the ground. In firing with this bow the concave end is uppermost; the string after the discharge of the arrow strikes the lower or convex part, and thus saves the left hand from being injured.

The *Little Andamanese bow* (v. No. 3) is apparently strung and used like any ordinary bow. As it requires much strength

to fire any distance with these bows, it is possible that for long shots the people make use of the leg. The natives of the other islands never make or use such bows.

The North Andaman bow (v. No. 4.) This is strung by first bending the bow the *reverse* way. When strung the string is *slowly* brought round to the front side, when it is adjusted at the two ends, so as to place it exactly in the centre line of the bow. To unstring it the operation is reversed. When not in use all Andamanese bows are kept unstrung and waxed, otherwise they are very apt to snap.

NICOBAR UTENSILS, IMPLEMENTS, &c.

1 These are cooking-pots as made by the natives of the Island of Chowra (or Tschaura), who barter them for boats, &c., at the other islands. Each pot has a distinctive name indicating its size and capacity. In the Sections, Pl. XV, they are represented upside down.

2 (Shanein) Monghêang, spear for killing pigs. Pl. XV.

3 Miân Kentem, fish spear having five prongs. Pl. XV.

4 Miân fôân " " four " Pl. XV.

5 Miân Momaingya " " two "

6 Miân lôë " " three "

7 Hôppâk, spear having a number of wooden prongs for small fish. (A small description of this spear is termed "shinpûng.") 2 large, and 2 small. Pl. XV.

8 Hinwenh. Fish harpoon used for catching large fish. The turtle harpoon (called Kansheû ka), very much resembles the "Hinwenh," but it has a longer line. [I have no specimen in my possession, so cannot send one.] Pl. XV.

9 Hop-lôäp, pig spear. Pl. XV.

10 Yenawma. This is used for killing pigs when a monghêang (v. No. 2 above) is not available. Formerly it was used for killing their bad (or unsuccessful) "munloënnas," or priests and doctors who are supposed to possess supernatural powers in being able to exorcise evil spirits, cure the sick, &c. Pl. XV.

11 Hô-m-yâh-la. This is regarded as a symbol or badge of honour, and is found only in the possession of their head chiefs. This is probably the only specimen, or one of very few, that has ever been brought away from these islands. Pl. XV.

12 Hisho-ya. Blackened cocoa-nut shells, used for holding their drinking and cooking water. They are kept suspended in their huts. The black polish is produced by smoking, rubbing, and applying pig's fat. Pl. XV.

13 Kanshait. Used as a scraper in preparing the kernel of the cocoa-nut and *Cycas Rumphii* for use.

14 Hanâ-lâh (also called fanâ-lâh). This is used as a brush for cleaning the feet on entering a hut, at the doorway of which it is placed. It is one of the drupes of the Pandanus Mellori fruit after the pulp has been removed. Pl. XV.

15 Hang-ai (Cyrena), used by the Nicobarese for obtaining the pulp from the Pandanus Mellori fruit by scraping. (In glass jar.)

16 Kanchû-at (*Capsa rugosa*), used for scraping the kernel of the cocoa-nut into fine thin pieces for their old people.

17 Pô-wha. Paddle. The ornamental one is called Pô-wha enkoin (male paddle), and the other Pô-wha enkâna (female paddle). Pl. XV.

18 Tai-yâk, being a half cocoa-nut shell, used as a cup.

19 Ichê. Worn in the holes which they bore in the lobes of their ears. Pl. XV.

19a Lanôch-hiya. Betel-nut crusher.

19b Anhâ (also ôk), used for scratching the person in order to relieve itch. Pl. XV.

19c Henhel. Flute. Pl. XV.

Bows and arrows are not used by the Nicobarese.

E. H. MAN.

PORT BLAIR,

September, 1877.

DISCUSSION.

Mr. W. L. DISTANT remarked that he was enabled to add little to the very full information collected by Mr. Man. Major-General Lane Fox had alluded to the Australian affinities in the objects from the Andamans, and had referred to the probable origin of the canoe being originally due to fire, as stated before in his paper on "Early Modes of Navigation."* A good instance of how this might occur is recorded by Labillardière at Port Dentrecaesteaux in Tasmania ("Voyage in Search of La Pérouse," vol. i). "Most of the large trees near the edges of the sea have been hollowed near their roots by means of fire. The cavities are generally directed towards the north-east, so as to serve as places of shelter against the south-west winds, which appear to be the most predominant and violent in these parts." Labillardière remarks that it cannot be doubted that these cavities are the work of men; for had they been produced by any accidental cause, such as the underwood taking fire, the flames must have encompassed the whole circumference of the tree; he also mentions how frequently the largest trees were thrown down by the wind.

* *Journal of the Anthropological Institute*, vol. iv, p. 403.

As regards the iron object from the Nicobars, which is described as an emblem of authority possessed only by the chiefs, Mr. Distant did not believe it to have been fabricated by the Ninobarese. In the *Journ. Ind. Arch.* (vol. iii) a writer records that whilst lying off the Island of Teressa, a chief sent his stick on board as a sign that he was coming. In the same volume, however, the Rev. J. M. Chopard, who spent some two years on the islands, particularly states that the only iron weapons the natives used were those they received from foreigners in barter. It was probable that this iron object had been acquired in the same way, and from its ornamental character used in preference to the original stick. When at Car Nicobar he did not remember seeing anything of the kind, though at the same time he was unable to state that such did not exist.

The great ethnological question at these islands is, What are the natives of the interior of Great Nicobar? He had previously expressed his opinion as to their being allied to the Andamanese and the Semangs of the Malay Peninsula, and had referred to M. De Roepstorff's belief that they were "Mongolian." That gentlemen had since (*Proc. A.S.B.*, 1876) described a visit he paid to the Great Island, when he was enabled to have an interview with one of these people, and he again pronounces the race to be "Mongolian."

PROFESSOR FLOWER, F.R.S., said in reference to the remarks of the author of the paper upon the hair of the Andaman Islanders, that he did not think it at all probable that it would be found to grow from the scalp in separate tufts with bare intervals, an arrangement which, although contrary to the statements even of the most recently published work on Anthropology, he ventured to believe did not exist in any human race. It had been disproved by several observers quoted in the paper just heard, in the case of the Papuans, as he had himself had several opportunities of disproving it in the case of Bushmen. The appearance of the scalp of these people until shaved is certainly very deceptive, the spirally twisted hair knotting itself together in distinct tufts, leaving intervals apparently bare, but not really more so than the partings which we can make at will on our own heads, and the same kind of observation which describes the Papuans or Bushmen as having bare spaces between distinct tufts of hair, would represent many of those now present as having the scalp evenly covered with hair, with the exception of a median or lateral naked line, as the case might be.

Considering the great interest which attaches to the physical character of the Andaman Islanders, he regretted that Mr. Man had not been able to supply materials for its study in a collection of skeletons as rich and valuable as that which he had sent of their arms and utensils, to the able description of which by General Lane Fox we had all listened with so much pleasure that evening.

MR. BERTRAM F. HARTSHORNE adverted to some points of similarity between the Andamanese and the Weddas of Ceylon. The use of bows and arrows is common to both; but the bows exhibited were in shape unlike those which are found among the Weddas; the arrows also were much longer and not feathered like those of the

Weddas. He observed that in a communication which he had received from a gentleman who had spent some time in the Andaman islands, it was stated that like the Weddas, the Andamanese were extremely good marksmen, and they would hit a fish under water; he further noticed that, as he had pointed out in the case of the Weddas, the long-continued use of the bow had resulted in an exceptional development of strength in the left arm. One of the Andamanese natives was stated to have been able to count up to eighteen, whereas no Wedda had the slightest idea of numbers, or even of the difference between one and two, and neither race seemed to have any sort of religious belief which could be properly so called.

JANUARY 22ND, 1878.

JOHN EVANS, Esq., D.C.L., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same:—

FOR THE LIBRARY.

From the EDITOR.—*Revue Internationale des Sciences*, Nos. 1—3.

From the EDITOR.—*Revue Scientifique*, Nos. 28 and 29.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—*Zeitschrift für Ethnologie*, Nos. 1 and 5, 1877.

From the EDITOR.—*Matériaux pour l'Histoire de l'Homme*, Oct. 1877.

From the AUTHOR.—*De l'Anthropométrie Médicale; De la Chevelure comme caractéristique des Races humains; Extract du dictionnaire encyclopédique des Sciences Médicales.* By Dr. E. Dally.

From the SOCIETY.—*The Journal of the Asiatic Society of Great Britain and Ireland.* Vol. X, Part I.

From the SOCIETY.—*Transactions of the Asiatic Society of Japan*, Vol. V, Parts I and II.

From the LIBRARY.—*25th Annual Report of the Manchester Public Free Library.* 1876-77.

From the SOCIETY.—*Proceedings of the Royal Society.* Vol. XXVI, No. 184.

From the CLUB.—*7th Annual Report of the Leeds Naturalists Club.* 1876-77.

From the SOCIETY.—*Proceedings of the Royal Geographical Society.* Vol. XXII, No. 1.

From the ROYAL ACADEMY OF COPENHAGEN.—Oversigt over det Kongelige Danske Videnskabernes Selskabs, No. 2.

From the SOCIETY.—Transactions of the Manx Natural History Society. Vol. XXVII.

From the AUTHOR.—Studi Antropologici ed Etnografici sulla Nuova Guinea. By Prof. Paolo Mantegazza.

From the EDITOR.—“Nature” (to date).

Mr. WORTHINGTON G. SMITH exhibited some flint implements from Devonshire.

The Rev. S. J. WHITMEE read the following paper in the absence of the Author.

The ETHNOLOGY of the MOTU. BY REV. WILLIAM
Y. TURNER, M.D.

NEW GUINEA has recently attracted a large amount of attention, and all that has been written upon the subject has been read by an eager public. Many different accounts have reached this country regarding its people and its productions. These have only tended to confuse our ideas as to that far-off land. This confusion is due to a combination of circumstances. In the first place it is hard to realize the extent of New Guinea, and we forget that it is very much larger than Great Britain, ranking with Borneo as the second island in the world in extent. Writers on New Guinea have also failed to specify the exact locality from which their observations were taken. It is evident that as there are different tribes in New Guinea, the manners and customs of those inhabiting one part, may be, and in reality are, very different from, and in some cases even opposite to, those in another part. In our own country a description of the manners and customs of the Highlanders of Scotland would not be correct of the inhabitants of Kent, nor would it be right to use a description of either as applicable to the people of Great Britain generally. This has, however, often been done with regard to New Guinea. Some writers, also, have written not according to knowledge, but according to fancy, and in their case, distance has lent enchantment to the scene. Other reports are rendered inaccurate by the short acquaintance travellers have had with the people they describe.

In this paper reference will be made to that part of the south-east peninsula of New Guinea which lies between Redscar Head and Hood Bay, with special reference to Port Moresby.

The writer resided at this place for six months, which is the longest time any European has lived on that part of the coast, with two exceptions. the Rev. W. G. Lawes and Mr. And. Goldie, who are still in Torres Straits or New Guinea.

This part of the New Guinea coast is bounded by a barrier reef; it has a broken outline, and so gives rise to numerous deep bays and narrow peninsulas. The character of the country may be described as hilly, the hills on the coast being rocky, with little or no vegetation in the west, but being better clad towards the east. The conformation of the land denotes volcanic origin. This region is sparsely populated by a coastal tribe grouped together in small villages along the coast. It was a pleasant sight to see these villages as we steamed along the still lagoon under a tropical sun, some nestling beneath a grove of cocoa-nuts as though seeking a welcome shade, others perched as watch-towers upon a hill-top, and others, more erratic, reared on piles in the lagoon itself.

To the west of this region, as far as Yule Plain, and the Papuan Gulf, the coast presents a dismal flat marsh where the mangrove grows luxuriantly.

In the neighbourhood of Port Moresby, the hills are covered with a coarse grass, interspersed with mere apologies for trees of the genus *Eucalyptus*. As we proceed further along the coast towards Hood Point, the character of the scenery changes, the hills are clothed with trees and shrubs, and the cocoa-nut tree grows in great profusion. Occasionally also a green grassy knoll is seen, reminding one almost of our green fields at home.

Port Moresby in lat. $9^{\circ} 30' S.$, and long. $147^{\circ} 10' E.$, is named after its discoverer Captain Moresby, of H.M.S. *Basilisk*. It is situated at the head of a deep bay, and at a distance of about five miles from the somewhat narrow entrance to the bay. Port Moresby is the head-quarters of a people calling themselves the Motu. Here there are two native villages named respectively, Anuapata and Elivara, consisting of about 120 houses, and containing about 1,000 inhabitants. These two villages are about 200 yards distant from each other. The settlement generally is called Anuapata, or great land; it is visited by many different tribes, who come for the purposes of barter, often making an annual trading expedition. Port Moresby is therefore a centre of commercial importance, if we may call small things by imposing names. The Motu are respected and looked up to by the neighbouring races, and so are an important people.

The part of New Guinea of which we speak is inhabited by three distinct tribes, the Koiari, the Koitapu, and the Motu.

The Motu appear to be colonists from some other country which has not yet been determined. This I think, because they live along the coast, and never in the interior, and are generally at enmity with the inland tribes. They differ also from the other two tribes in their possessing canoes in which they engage in fishing, and in making voyages to distant parts of the country.

The Koiari are evidently the aborigines of this part of New Guinea, they live in the interior among the mountains, and go down to the coast occasionally for the purpose of robbing the plantations of the Motu, and trying to drive them away. They are darker in colour than the Motu, and more muscular in appearance.

The Koitapu may be best spoken of as nondescripts; they are a roving people living chiefly by agriculture and hunting. A small settlement of these people is generally to be found at one end of the Motu villages, and they preserve their identity as completely as do the Jews in our own time. They live also in the bush, either in groups of two or three houses together, or a solitary one. They do not remain very long in one place, but wander from place to place. Their manners, customs, manufactures, and language, are different from the Motu; they are distinct also in appearance, being of a darker shade and more savage expression. They live upon friendly terms both with the Motu and the Koiari. They resemble the latter in many points in which they differ from the former, and it is very probable that they originally belonged to the Koiari, although in the present state of our knowledge we cannot determine this. A longer residence among these three tribes will be necessary before their origin and history can be accurately traced out.

The Motu belong to the great Malayo-Polynesian family, being of a copper-brown colour, differing both in colour and features from the Papuan or Negrito race, which inhabit New Guinea to the west. It is my opinion also that both the Koitapu and Koiari are distinct from the Papuans, but my observations of these tribes have not been sufficiently numerous to determine the point, and so I confine my remarks to the Motu.

In his chapter upon the "Races of man in the Malay-Archipelago," Mr. Wallace speaks of the natives of New Guinea as being Papuans. His description of the "Malays," however, corresponds in a remarkable degree to the Motu, while his descriptions of the "Papuans" in the same chapter, would at once lead me to decide that the Motu are not Papuans. One difficulty in determining the question of race arises from the fact that different writers describe the same people in quite a different way. It is better therefore not to rely on written descriptions only, but to secure if possible photographs of

natives. Through the kindness of the Rev. W. G. Lawes, with whom I was associated, while on New Guinea, I am able to illustrate this account of the Motu with engravings copied from photographs taken at Port Moresby. For the purpose of comparison, my photographs are so arranged as to place that of a Motu between a Papuan and a Malayo-Polynesian, so that a glance will decide to which of the two great families into which the inhabitants of Polynesia are divided the Motu belongs.

It is, however, specially in profile that the greatest difference between the Motu and the Papuan is seen; it is to be regretted therefore that a large number of profile pictures have not been secured. The natives of the New Hebrides as well as the Torres Straits Islanders, who are Papuans, have decidedly a more monkeylike formation of the head than the Motu. In the latter the craniofacial angle is much larger than in the former.

The opinion that the Motu are distinct from the Papuans is strengthened also by the fact that they look down upon the black people as being much inferior to them. For example, Papuan teachers from the Loyalty Islands were looked upon as an inferior class of men, while Malayo-Polynesian teachers from Eastern Polynesia were received and treated as equals.

In the annual trading expeditions which the Motu make to Elema (Cape Possession), the Motu women never accompany the men, the reason being that they would be stolen by the black Elema men, who like light-coloured wives. On the other hand, when the Elema visit the Motu, women come as well as men.

The Motu are much like Europeans in expression, especially the children, many of whom were really pretty, with merry open countenances, and sharp bright eyes. This beauty is lost with age, and the adults are generally harsh and savage looking. This "premature old age and harshness of features" in savage races, Mr. Wallace thinks, is due to exposure, while hunting and fishing, use of the betel-nut, and want of a *regular* supply of food. This is eminently true of the Motu, who at certain seasons of the year are very badly off for food, and are always much exposed. Their style of wearing the hair, as well as some of their ornaments, especially the makolo, or nose-stick, gives them a more savage appearance than they would otherwise have. The adult women who shave their heads and do not wear the nose-stick are not savage looking. There is nothing repulsive in their appearance as a rule, and many of them are even handsome.

The hair is of a peculiar frizzly nature, but not woolly as in the negro. It is worn long by the young men and women, and forms a mop round the head. In some case it is quite straight.

Children and married women have their heads shaved ; in the former, two tufts of hair are left long, one over the forehead, and another on the crown of the head. What the object of this fashion is we cannot say, but it is suggestive, and surely the mothers cannot resist the temptation afforded by these tufts of hair when they wish to punish a disobedient child. Shaving the head is also a sign of mourning. When the Motu start upon their trip to Cape Possession, all the young women shave off their fine mops of hair as a token of sorrow at the departure of their sweethearts. The change this makes upon their appearance is remarkable. When Miss Henao, our regular water-carrier, puts in her appearance at our door the next morning to get the daily supply of water, and without any sign of recognition one tells her to go away, her face expands into a broad grin, and she asks with a merry twinkle if we do not know her. The hair is of a brown-black colour, but not jet black, sometimes among the children it is sandy in colour, getting darker with age. This is characteristic of the Hood Point people. There is little or no hair upon the chin or any other part of the body.

The Motu are, if anything, below the average stature, and of slight build, which is probably due to the fact that they have not much food. At Hood Bay and in the interior, where food is more plentiful, the natives are taller and more muscular. Port Moresby was visited by small-pox about ten years ago, and the population was decimated by it. Two or three years ago, the mission vessel took measles to Port Moresby ; the natives all took it and many of them died. While a few years ago, some hundreds of the men went off on their annual expedition to Elema, and were never heard of again ; it is supposed that their canoes foundered at sea. These three circumstances have combined to weaken the Port Moresby population ; hence a stranger's first impression of the youthful appearance of the people. In forming an opinion of the Motu race, therefore, due allowance must be made for these unfavourable incidents in their history.

The proportion of the sexes appears to be equal, and the children are numerous. They appear to live to a good old age, although from the causes already stated, this cannot be very accurately determined. When visiting at Hood Point we saw two Albinos, a man and a boy. They were typical specimens, having light hair, weak eyes, and ulcerated skin. They were naked like the other natives, and presented a curious contrast to their copper-coloured brethren.

The people appear to live, upon the whole, moral lives : the marriage relation is observed, and illegitimacy does not prevail to any extent. Polygamy is not indulged in ; even the chiefs content themselves with one wife like the other men,

except in rare cases. Even then the number of wives is only two or three, and in no case is there such an institution as a harem. It is reported, however, that some of the Port Moresby men have a second wife at a neighbouring village called Pori-pata; and certain it is that in this village the women predominate, and many of the Port Moresby men visit this village oftener than is requisite for strictly business purposes. The reason given by the Motu for not practising polygamy is the eminently true one, that the women would not agree together.

Infanticide is not known; they love their children, treat them kindly, and mourn for them when they die. We observed one mother whose face was bruised and bleeding in token of her grief for her infant whom she was burying.

Motu mothers suckle their children for a much longer period than is deemed either convenient or advisable by civilized mothers; in fact the mother does not wean the child, but the child weans itself.

It is a common sight to see a child *run* up to its mother and drink at her breast. One child is not weaned till another comes, and sometimes the two struggle with each other for the breast.

The consequence of this is that the breasts of a matron are large and pendulous. The Motu children are well nourished, and this is due to the unsophisticated notions of their mothers, and also the fact, for which they may be profoundly thankful, that there are no substitutes for the mother's milk in the country.

Among the Motu the women are looked upon as the weaker vessels, and the men regard their wives literally as *helpmeets* for them. The husband considers it his duty to chastise his wife when he thinks she requires it, and looks upon it as a virtuous action rather than otherwise. The women are however very well able to hold their own, and in their mouths their tongues are always a most powerful and often a most offensive weapon. The torrent of abuse and invective which proceeds from a Motu woman when she is roused (and it does not require much to accomplish this) defies description.

The men and women have their own allotted work. The women carry water, weed and tend the plantations, cut firewood, and cook the food; while the men till the ground, fence in the plantation, tie up the banana branches, cut the bananas when ripe, hunt and fish. There are certain occasions upon which the women go to fish—they gather all kinds of shell-fish; on these occasions the men stay at home. It is the duty of the husband to stay at home and nurse the baby when his wife is at the plantation or fishing. The women are the beasts of burden, they do all the carrying work. When a man and his wife return

from working in their plantation he walks a few yards in advance, carrying his spear over his shoulder; and his wife, staggering under a load she can hardly carry, with perhaps one or two children hanging on to her tails.

With respect to manufactures also, the men and women have their own particular branches of industry, which will be referred to more specially when dealing with the manufactures themselves.

Of the Motu dress not much can be said, as there is not much to speak of, it is remarkable for its simplicity; one article suffices the women, while the men are content with an apology for one. The Lami or girdle worn by the Motu women is the same as that worn by the South Sea Island women generally. It is made of the bark of a palm, or of the banana, or of a species of grass, according to the place where it is made, and it reaches from the waist down to the knees. These girdles are made by the women, they are not made at Port Moresby; but the Motu women buy them from the Elema or the natives of Kapati, a village up the Manumanu river. The girdle from Elema is red, while that made in Kapati is white. The Elema women themselves wear a girdle which has only a front and a back piece, leaving the thighs bare at the sides. The Motu women express themselves as being very much shocked at this indecency on the part of their Elema sisterhood!

Three or four of these girdles are worn one on the top of the other, thus making a good and effectual covering.

In walking, and especially in dancing, the women move the body so that the loose ends of the girdle swing from side to side. The women are very particular about this dress, and are never seen without it; it is worn by the little girls as soon as they are able to walk.

The dress of the men consists of a narrow strip of bark, or, and more commonly, a piece of thick cord wound once or twice round the waist and then passing between the legs. A slight modification of this dress, or the mode of wearing, it distinguishes the different tribes and people. Young boys go quite naked, and they do not adopt the dress of their fathers until they are well on in their teens. The men are very particular about their dress, scant though it be, and would as soon go without it as we would go without our clothes. For example, on going in to bathe a man will carefully divest himself of his garment, and lay it upon the ground as we do our clothes, dressing himself again when he has finished his bath.

If the garments of this people are scanty their ornaments are not so; their wardrobe consists more of ornaments than of clothes proper. Their ornaments consist chiefly of head-dresses, nose-

sticks, earrings, armlets, necklaces, breast ornaments—these are chiefly of shells or tortoiseshell.

The most common head-dress, especially among the inland tribe, is made of the feathers of the cassowary. It is worn across the crown of the head, thus forming an imposing crest, and is frequently the distinguishing mark of a chief.

A comb ornamented with a tuft of feathers, especially those of the white cockatoo, is often used to deck the head. The comb itself is made of three or four pencils of wood bound together at one end. It is used for combing out the ends of the hair.

The Koitapu have a fashion of binding a piece of native cloth round their back hair, in the form of a regular chignon.

Frontlets made of shell, a strip of banana bark, or of the skin of the cuscus or of sweet-smelling or bright-coloured leaves are common. The people of Hood Point wear a distinct frontlet which consists of seven or eight circular pieces of brick-red shell, of about the size of a penny, with a hole in the centre. These are worn across the forehead and are attached to the head by a tuft of hair being passed through the hole in the shell.



FIG. 1.

The makolo, or nose-stick, is shown in the illustration, fig. 1. It is the most striking ornament of this people. It consists of a pencil of white shell from three to eight inches long, pointed at both ends, and worn in a hole bored in the septum of the nose. Hairs are twisted round the stick at the ends, thus

making the black rings which give it a finish. This, like the ornaments already mentioned, are worn by the men only. The women however have the customary hole in the septum, through which a widow wears part of her "weeds." See fig. 2.



FIG. 2.

A small piece of stick or a roll of banana leaf is sometimes used instead of the nose-stick proper. The natives turn their nose-stick so as to have it well balanced.

The ears are pierced by earrings not in the lobe only but also in the superior margin of the helix. The earrings are generally made of tortoiseshell, but strings of small red beads or plates of tortoiseshell ornamented with red beads are now most fashionable. Girls are frequently to be seen with their ears turned down with the weight of beads hanging from them. Earrings are generally, though not exclusively, worn by the young women. The hole in the lobe of the ear is often filled with a bunch of sweet-smelling or bright-coloured leaves.

Necklaces are generally made of small shells strung together. They are worn alike by men and women. A necklace much worn by young women is one made of pigs' or dogs' teeth strung together. This necklace is much valued, and a young woman will on no account part with it, as it is given her by her lover, and is a pledge of his love, as the "engagement ring" is with us.

The kepore is a breast ornament or charm for use in war or while hunting. It consists of a piece of tortoiseshell ornamented

with pigs' teeth and the seeds of a species of mimosa. When fighting it is held in the mouth and is supposed to act as a charm upon life.

The most common breast ornament is a piece of mother-of-pearl, the shape of the moon when in the first quarter; it is suspended by a string from the neck.



FIG. 3.

Armlets are made of shell, skin, or some plaited material, and are universally worn. The *toea*, or white shell armlet, is one of the most valuable ornaments the natives have. It is made out of the lower segment of a conical shell, and is valued because ten of these armlets is the price of a wife. This armlet is used only on extra occasions.

The common armlet constantly worn by men and women is plaited strips of bark or grass. They are about two inches broad and are worn upon the flesh by part of the arm above the elbow. They are worn very tight, the skin projecting both above and below them but they do not appear to have any bad effect upon the circulation. They are often smeared over with red clay. Between the armlet and the arm is the only pocket which a Motu possesses, here it is they keep their tobacco. Bunches of sweet-smelling leaves are also often stuck in the armlets.

Strips of iguana or wallaby skin are often used as arm, wrist,

or finger rings. In time of mourning also the armlet and waist-belt are made of a particular kind of cane.

A string is sometimes worn, especially by the children, over one shoulder and under the opposite armpit, whether for use or ornament is not known.

The knee and ankle joints are also often tied round with a piece of string or bark.

Painting the face and tattooing the body are also done for the sake of ornamentation. Among the Motu the face only is painted, except in time of mourning, when the whole body is blackened. The face is painted when they dress for a dance or to go hunting; the paint used is an edible red clay, and black paint prepared by burning the cocoa-nut husk. Washing blue is now much prized for this purpose. The painting is very simple, and consists of one or two lines down or across the face, or round the eyes, forming a grotesque pair of spectacles. It is chiefly the young men who are decorated in this manner.

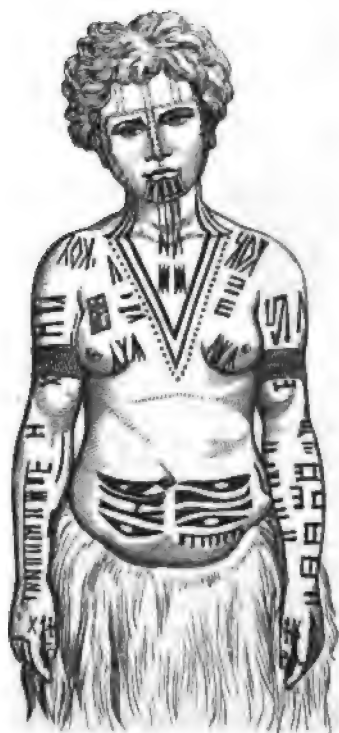


FIG. 4.



FIG. 5.

The custom of tattooing is carried to great perfection among the Motu women, whose bodies are covered with tattoo marks

resembling fine lace garments. In fig. 4 the marking will be seen as copied from the girl Tabuta. The paint used in tattooing being of a *blue* black it does not come out in the photos., and so I took an exact pencil copy of the marks on the girl's body. Tattooing is universal among the women, but does not obtain among the men, with the exception of an olive leaf marking in the clavicular region of some men, which probably denotes bravery in battle.

This marking is begun upon the face when the subject is a little girl, one line being done at a time, the chest, arms, &c., being done at intervals as she grows older.

The pattern upon the face is always as represented here, but the marks upon the body vary with the individual. The patterns are however always of a geometrical type; flowers, leaves, fish, or birds never being attempted.

The triangular marking on the chest (fig. 4) denotes that the girl who bears it is engaged to be married. When marriage is completed the spaces left bare, are filled up, and the marking extends as far as the knee. How it is done we do not yet know; it is the work of the matrons, and the subjects affirm that it is a painful ordeal. When freshly done the skin is rough, and there is a little inflammation. The marking is neat and symmetrical. It relieves the body, and has the appearance of a tight-fitting suit of clothes.

The food of the Motu consists principally of wallaby, fish, yams, bananas, cocoa-nuts, and sago.

They are not well supplied with food, and often suffer for want of sufficient nourishment. The land in the neighbourhood of Port Moresby is barren and unproductive, so the inhabitants have to a great extent to depend upon imported food. Their food and the sources whence it is derived differ in the different seasons, and it is between these seasons, or if one supply fails, that they suffer. Sago, upon which they mainly depend for some months of the year, comes from the Cape Possession. In the fall of the year the Motu visit Cape Possession, taking with them large quantities of their earthenware pottery for trade, and return with their canoes laden with sago.

In the spring the Cape Possession people come to visit the Motu, bringing large quantities of sago, which they sell for white shell armlets, &c.

This sago is the staple article of food till the yam season comes in. During our summer and their winter they live upon yams, bananas, and fish. In August the hunting season commences, and for two or three months they live almost entirely on the flesh of the wallaby. It is during this season that the natives have most to eat.

The sago already spoken of is prepared by the women, who, when engaged in the work, are railed in, and no man is allowed to go near the place, which is tabooed for the time being. When at Yule Island we saw some women at work, and on going near to observe the process were at once ordered off, not only by the women themselves but also by the men, who explained that it was the women's work and sacred. As far as we were able to see, the sago was simply dug out of the trunk of the sago palm and washed with water.

The principal meal of the day is taken in the afternoon when the people return from fishing, hunting, &c. The cooking is done by the women on an open fire outside the house. The meat, vegetables, &c., are all boiled together in the *uro* (an earthenware vessel). This is the only mode of cooking we have observed; when cooked the food is portioned out and placed in naos, or earthenware basins, out of which two or three eat in common. The food is conveyed to the mouth by means of the *bedi*, a cocoanut-shell spoon. The culinary art is in a more primitive condition than in most of the South Sea Islands.

The pig and dog are eaten, but are considered delicacies only to be indulged in upon feast days. The Koitapu eat snakes, iguana, and rats.

Of fruits, there are the cocoanuts, bananas, rose apple, and mango, but all of an inferior kind. The banana is used more as a vegetable than a fruit, being boiled and eaten before it is ripe. The natives do not care for foreign food except boiled rice, of which they will eat any quantity.

We can find no trace of cannibalism, and it does not appear to have been practised by them.

The Motu are not an athletic people; with the exception of dancing they indulge in no games. They are eminently lazy. Dancing is engaged in by the youth and beauty of the village, all painted and decked up in their best style, while the elders in the verandahs of their houses look on. The dance is very orderly, is performed with great decorum, and in strict time. It consists, as does our own, in the execution of various figures and movements to the time of the drums and the dull monotonous song of the dancers. Both sexes dance together, and are arranged in pairs. All stand in a semi-erect posture with knees slightly bent, and the body inclined forward; they keep step with each other perfectly. There is no hurry, excitement, or noise. At intervals there is a pause for rest, when conversation is indulged in, and the dance is resumed. The time for these dances is in the evening, especially when the moon is shining, when the dancing

is kept up till morning. There appears to be nothing indecent in these dances.

The merry, laughter-loving children are as fond of fun as their contemporaries here, and indulge in a variety of games. They make small windmills of cocoa-nut leaves, similar to those with which rag and bone men delight our juvenile community. The Motu children are as well versed in the intricacies of "cat's cradle" as are the English; while spinning a button or round piece of shell on a cord, and keeping a bladder up in the air by patting it with the hands, are favourite games. Boys with their miniature spears learn the art of hunting by spearing a cocoa-nut husk as it spins along to the ground, it being thrown by their comrades at a distance. They amuse themselves also for hours together in the water spearing or shooting arrows at small fish, and then kindle small fires on the shore in which they cook what they catch, and enjoy a meal specially their own. The children are left much to themselves to devise their own amusement. They make their own toys, which gives them a greater interest in them, and they never weary of play. In this way the days pass happily by, and these merry children know nothing of the tasks of school, the troubles of keeping their clothes clean, or the miseries of being washed; troubles that vex the lives of almost all civilized children.

With respect to disease and its treatment little is yet known. Upon the whole, the Motu appear to be a healthy people, although they certainly suffer (to a certain extent) from the fever of the country. Ulcers on the legs are common, especially to the west of Port Moresby; a few cases of elephantiasis were also seen. The lafa, or ringworm, is very common, and nearly all young children are afflicted with the tona, warty eruptions on the margins of the mouth and arms. Any deformity or disease is concealed as much as possible from view, and the subject does not like attention drawn to it. They connect a sudden attack of illness with an evil spirit whom they call Vata. He is supposed to live in the bush, but they neither worship nor propitiate him in any way. When a person is taken suddenly ill they say Vata has killed him, his life is despaired of, and little or nothing is done with him. There are a few natives who profess to have some power in charming disease, and sometimes certain leaves or roots are used as medicine, but the belief in these native doctors is small. While at Port Moresby an influenza epidemic broke out among the natives and carried off a number of them. After an epidemic of this nature the natives drive the disease away by beating sticks, shouting, making a noise generally and throwing burning sticks into the air.

Many of the children die in infancy, but not from any special

cause as far as we could ascertain. Their trust in European medicines is not yet established, although they are beginning to feel the benefit of sulphate of copper dressing for their sluggish ulcers, and chlorodine for colds in the chest. While at Port Moresby only one opportunity of practice presented itself, but the natives would not sanction the operation. A young man was taken suddenly ill; Vata was supposed to have killed him.

On examination he was found to be suffering from distension of the bladder, resulting from retention of the urine from a spontaneous stricture, caused by undue exposure. It was proposed to use the catheter, and a number 6 was shown to the man and his friends and the *modus operandi* explained; they objected, on the plea that the instrument was too large for the passage, and argument failed to convince.

Fever and ague prevail along this coast; all Europeans who have resided for any length of time upon it have, with one exception, been attacked, and many natives from Eastern Polynesia have fallen victims. The fever is often a bilious fever. Its peculiarity is the head symptoms which accompany or succeed it. It is not uniform in its mode of attack; sometimes it is ague in its ordinary three stages, at other times this is accompanied or replaced by violent vomiting and retching when nothing will lie on the stomach; in other cases it renders the subjects insensible at once, in which state they continue for a week, and then die. In all its forms there is severe headache, often wandering, and after an attack intense pain in the back of the head and the muscles of the back of the neck. The attacks are not regular in their appearance or duration, sometimes they occur every second day; at other times every day, while at others they last for a week. At all times the effect is complete prostration.

Quinine seemed to exercise little or no prophylactic power, as the fever was felt by those who used it continually as well as by those who never took it. It was our belief that if it had any effect at all it was in lessening the severity of the attacks.

Among the Motu the death of relatives or friends is marked by many expressions of sorrow. The extent of the mourning is regulated by the status and age of the deceased. Old people and young children are not mourned for as are those who die when in the prime of life. A chief is buried with more ceremony than a common man. Shortly before our arrival at Port Moresby, the son of one of the chiefs died, and we had an opportunity of observing the burial ceremonies. A description of this will give an idea of all.

When a person becomes ill the relatives and friends assemble in the house, which becomes literally crowded with men, women, and children. The more immediate relations sit round the

patient as nurses, while the women wail and cry. As soon as life is extinct, but not before, the drums begin to beat, and the wailing increases. This howling is kept up night and day for two or three days, and a more hideous, unearthly noise cannot well be imagined. The friends of the deceased take turns at wailing and beating the drums. When the days of wailing are ended a grave is dug in front of the deceased's house; over the grave a small hut is erected, in which the widow has to sit and live for a certain period. The body is placed in the grave, laid upon a mat or piece of native cloth; the grave is not filled in, but the body is left exposed. After a certain time the corpse is lifted out, the elbow and knee-joints are rubbed with red clay, the widow smears her body over with the juice from the putrid corpse, and the grave is covered in. After another period has elapsed the hut is pulled down; still later the posts that supported it are removed, and lastly the boards which were placed over the grave are taken away, and no trace of the grave remains except in the fresh gravel laid over it.

Each of these stages in the burial ceremony is marked by a feast; the bunches of banana, &c., which are to supply the feast are hung on a pole at the grave. The body is laid in the grave with the feet to the sea and the head inland; while in the South Seas, generally, the body is so placed that the face will be towards the rising sun.

The relatives of the deceased go into mourning by blackening their bodies all over, and wearing a particular kind of armlet and waistbelt made of cane. The widow shaves her head, lengthens her lami, or girdle, and wears her husband's hair and some of his goods suspended round her neck. At a village near Port Moresby we saw a widow with four or five inferior maxillary bones hanging round her neck, evidently the relics of some departed husbands or children. She was amused at our efforts to buy these remains of her loved ones, but would not consent to part with them.

The Motu believe in the immortality of the soul, they say there is something in man which does not die with the body, but leaves the body at death and goes to a land they call Taulu. Taulu is no particular region, but just space where the Tirava or spirit lives for an indefinite time. They believe also that the departed sometimes appear again on earth. Children will run into the house and tell their widowed mother that their father has come back to see them; she goes to the door, and true enough sees her husband standing with his feet in the ground, as if he had risen out of it. She tries to catch hold of him, but he sinks into the ground again. These things are not cited as nursery tales by the people, but are most firmly believed by them, and

they appeal to the evidence of their own eyes in confirmation of these appearances, if we express doubt as to their truth. They believe also that when a person dies, the spirit of some departed friend comes to carry the spirit away. These beliefs are most interesting to consider, and we only desire to know a little more about Taulu, and the occupation of the souls while there; but these points will be cleared up as our knowledge of this people increases.

The dwelling-houses of the Motu are very rude structures, and present more the appearance of barns than habitations. They are always built upon poles raised 10 or 12 feet from the ground. The object of this raising off the ground is not clear, but most probably it is found to be more healthy. The houses are grouped into villages, which vary much in size. They are built either on the shore below high-water mark, or a few hundred yards from the shore in the lagoon. In the former instance they are arranged along the shore in a single line, while in the latter case, they are arranged in two straight lines opposite to and facing each other. Sometimes also there are houses connecting the two lines at one end, thus forming three sides of a square. Each house is approached by a ladder from the water, and in front of each house is a platform of boards; these are united together, so forming a kind of street.

The object of building their houses in the water is as a protection against the inland people, who come down to the shore and make raids upon the plantations of the Motu, fight with them, and burn their houses if they can. As the inland tribe do not possess canoes, they have no means of reaching the houses built in the lagoon except by swimming, when they may easily be speared; hence the protection afforded by the water.

The shore villages nestle under the shade of a cocoa-nut grove; between the trees and the houses is in an open space, the "ariara," or street, of the village, where the villagers sit, work, dance, &c.

The houses consist of a frame-work of poles thatched with grass or the pandanus (screw-pine) leaf, floored with boards made out of the sides of old canoes. The house is reached by a rough stick ladder, at the top of which is a small platform where the people sit, the posts of this are hung with bones of fish, turtle, dugong, &c., mementoes of feasts which, though past, are to memory dear. The house is entered by a low door, consists of one room, and is entirely destitute of furniture. In the centre of the room is a square place laid with clay, this is the fire-place; the fire is an open one, and the smoke finds its way out of the door, which also serves as chimney. There are no windows in the house, but at the opposite end from where we entered is another

small door with another small platform, and this faces the open sea. In the roof are stuck spears, &c., while bags containing the household goods hang from the rafters.

At Papaka, an inland village near Hood Point, the houses were very much better built, and were divided into three apartments; while at a small bush village belonging to the Koitapu we observed a house built among the branches of a high tree some forty feet above the ground.

The pursuits of the people consist chiefly of hunting, fishing, and agriculture. Wallaby abound through the bush and are hunted every year about the same time that the hunting season begins at home. The Koitapu tribe are the principal hunters, the Motu being chiefly fishers. The mode of hunting is peculiar, and consists in burning the long grass that covers the plains, and trapping the animals in nets. A large tract of country is chosen as the scene of the hunt; strong nets are erected in a semicircle round this tract, thus forming a netted wall, the nets being fastened to spears stuck into the ground. A number of men armed with spears and hand-nets remain in ambush beside the nets, while others go to windward and set fire to the long grass. The wind drives the fire towards the nets, and all the animals in that tract of country are enclosed in a wall of fire and nets. The wallaby, maddened by the fear of fire and the shouts of the hunters, rush against the nets and are speared or caught in the hand-nets. The fire is damped out with green boughs. Many wallaby are caught in this way, they are carried whole till within a short distance of the village, when a fire is kindled, the hair is singed off the body; the animals are then cut up and divided among the hunters. This singeing process gives the flesh a disagreeable taste and smell.

The hunting season lasts for two or three months, the whole of the country side being burnt in this way. During this season the natives are well supplied with food. The hunters start for the field early in the morning, and do not touch food till their return in the afternoon. They do not engage in conversation on their way to the hunting ground, nor do they like being spoken to, as it is considered unlucky. They dress themselves up when going to hunt, as their fine appearance is supposed to favour their success. The native dogs are used in hunting; in fact it is chiefly for this purpose that they make a domestic animal of the miserable howling animal dignified by the name of dog in New Guinea.

The principal industry of the Motu is fishing, which is done entirely by the net, hooks never being used. The only fish-hook seen among the people was one got from an Elema man; it consisted of a simple unbarbed tortoiseshell hook. The fishing

ground is near the reef opposite the harbour. The fishers start about six o'clock in the morning, and return about five in the afternoon. Many kinds of fish are caught, and they form one of the chief articles of diet with the Motu all the year round. The dugong is caught by the natives, and highly prized for food. It is caught in large strong nets, made of fine rope, similar to the wallaby nets.

At Kerepunu, Hood Bay, a regular fish market was held, the fish being exposed on stalls at the doors of the houses; fish were exchanged for yams, &c., the produce of the field; and keen bargainers some of these dusky fishwives were.

The Motu depend much upon the cultivation of the ground for food, each family therefore owns a portion of land for a plantation. The plantations are all fenced in to protect them from the inroads of the wallaby. The ground is tilled, fenced in, and planted by the men, who also tie up the branches of banana and cut them when ripe; while the women weed the plantation, trim the banana, gather the yams, &c. The mode of tillage is as follows: six or seven men, armed with a long stick sharpened at one end, stand in a row, thrust the stick into the ground and turn up a large clod; they work in time, and sometimes by word of command. In this way the field is very effectually tilled, and, if done regularly, presents the appearance of a ploughed field. The plantation generally contains bananas and yams.

The weapons of war used by the Motu are spears, bows and arrows, clubs, shields, and the *kōta*. The spear is made of hard wood, and is barbed on one side only; this is the only kind of spear found in this part of the country, and is used both in hunting and in battle. The bows and arrows resemble those of the South Sea Islands generally, excepting that the arrows are not so finely carved, a plain notching on one side being sufficient. The club used by the Motu is a simple but effective weapon, and consists of a round flat stone sharpened at the edges, the handle is formed by a stick which passes through a hole in the centre of the stone. A bar of hard wood five feet long, three inches broad, and about one inch thick, is also used as a club.

The shield is simply a flat piece of board, ornamented with matting and feathers on one side, and having the handle upon the opposite side.

The *kōta* is a loop of cane with a barbed arrow-head fixed in the centre. It is used when pursuing an enemy to put over his head, pull him up, and then run the arrow into his neck. It combines lightness with great strength, which render it a most effective weapon.

In England certain towns are known as the seats of particular industries, so among the Motu each village excels in some special industry. There is therefore a constant trade carried on between the different villages. The manufactures of the Motu are chiefly ornaments and household utensils. Kapati is noted for its women's dresses, Tatana for red shell ornaments, Hula yields cocoa-nuts, while Port Moresby is the centre of the potteries. Most of the ornaments used by the people are made by grinding down shells. Holes are bored in the shells by means of a rude drill, the point of which is a sharp flint.

The Motu are skilled in the manufacture of rope and cord; what they make in this way would be creditable to a more civilized people. This industry is engaged in by men, who make good whipcord by twisting the bark of the paper mulberry upon the bare thigh. The cord is used for making kiapas or bags, fishing nets, &c.; the rope, for rigging their canoes.

The *kiapa* is a netted bag used for all carrying purposes, it is a woman's market-basket, and a Motu woman is rarely seen without it. It is carried on the back, being suspended from the head, the handle passing across the head just over the forehead. In this way very heavy weights are carried, and the result is a furrow is produced upon the head where the handle rests. The *kiapa* is also used as a cradle, the infant being put into it, it is hung from one of the rafters, and the child lulled to sleep by being swung backward and forwards.

When going from home, the men generally provide themselves with a small *kiapa*, which they carry under the arm, the handle being over the shoulder. This they use for holding their lime pot for betel-nut chewing, the nuts themselves, a plug of tobacco, and such like treasures.

The chief industry of the women is the manufacture of earthenware pottery. There are three kinds of vessels made, the *hotu*, the *uro*, and *nao*. The *hotu* is a globular vessel with a small mouth, it is used for carrying water in; a good-sized one will hold a bucket and a half of water. It is carried upon the back of the shoulder. The *uro* is a *hotu* with a much wider mouth; it is used for cooking purposes. The *nao* corresponds to our bowl, and may be described as the lower half of the *hotu*, it is used as a dish or plate to hold cooked food. These vessels are made of clay and sand, a red and a black clay being used; these are pounded down, mixed with water, kneaded to the proper consistency, then worked into the required shape by means of the fingers, and finished by manipulation with a round stone and a wooden beater. The vessels are made in two pieces, one being the body, the other the mouth. The moulding of the two parts together, and the finishing is

done by beating the clay with a piece of wood shaped like a man's hand, while a round smooth stone, the size of a large apple, is held inside the vessel, which rests the while between the calves of the potter. In this way they are made perfectly round, smooth, and of equal thickness throughout, the thickness being about one-eighth of an inch. When finished they are set upon the ground to dry, and then fixed in an open fire, the fuel being heaped all round them. When properly baked they are taken out and sprinkled with a decoction of bark, which gives them a black coating. In this way very strong serviceable vessels are made. The chief seat of this manufacture is at Port Moresby, and large quantities are exported annually to Elema, &c., in exchange for sago, yams, tars, lime, etc.

The Motu are not a shipbuilding community, the reason being that they have not the timber. All the wood they use for their houses, and for fencing purposes is brought from Lealea, about 17 miles to the west of Port Moresby. At Hood Bay, where there is a large supply of timber, shipbuilding is vigorously prosecuted. While there we saw two men hollowing out a large trunk for a canoe. Standing opposite to each other, they swung their long stone adzes over their shoulders, dealing blow after blow in regular succession, as riveters do their hammers, the one cutting the wood with the grain, the other chopping across the grain what the first had cut, thus making the chips fly apace. The adzes were of stone, with wooden handles two and a half feet long, and when used in the way indicated by two tall powerful men, did their work most effectually. We thought more of the Stone Age after seeing this than we had done before. The canoes resemble the ordinary South Sea Island canoe—a hollowed-out trunk with an outrigger. They are propelled with paddles or a pole, or by means of a sail. The sail is a piece of matting between two poles; the poles are fixed temporarily in the bottom of the canoe, and a rope from them to each side of the canoe not only stretches the sail but keeps the poles erect. The rigging is thus easily managed, the canoes sail well up to the wind, and weather a rough sea very well.

The large canoes, or lakotoi, in which the Motu make their long voyages are clumsy, although elaborate structures, and are more like square rafts than boats. They are made by joining four or five large hollowed-out trees together. Upon this hull a platform is erected which projects over the side of the hull two or three feet all round. Upon this again, bulwarks eighteen to twenty-four inches high are made at a little distance from the edge of the platform. Part of the space within the bulwarks is roofed in, to afford some protection from the weather, as sleeping quarters. In this space also a network of shelves is

built for the purpose of carrying the pottery to be traded with. One or two small trees with the branches lopped off serve as masts, the spreading roots being bound down to the hull to keep them erect. The part of the tree where it has forked or branched is used as the pulley for hoisting a large mat sail, curiously shaped like a crab's claw. The mat is bounded by two long bamboos, which stiffen it.

These boats hold about one hundred men as well as a great deal of luggage, but are most unsightly, unwieldy structures. The anchor is a large stone enclosed in a netting of strong cane. The cable is also of cane, as is the standing rigging, of which however there is very little; the various sheets are of rope.

There is a great deal of work connected with the building of these canoes, and much superstition mixed up with them. When the hull is finished, for instance, it must be anchored out in deep water every night, because if left upon the beach it will feel insulted at being treated like a common small canoe, and the voyage will be unsuccessful. The lakatoi is therefore treated with all the respect due to a vessel of large size. A new boat is built for each trip, and for five or six weeks previous to the departure of the expedition the village presents quite a lively appearance. The women are all busily engaged in pottery manufacture, while the men are making rope or building the canoes.

On launching one of these canoes they must have trial trips for three days, and the belles of the village dance on the platform while the canoe sails about the harbour.

The Motu are not a musical race, and they possess only two musical instruments, the kaba, or drum, and the bibo, or Jew's harp, the latter is rarely seen while the former is in constant use. The drum is shaped like an hour-glass, having the handle at the narrow part; it is hollowed out of a solid piece of wood, and has an iguana skin stretched over one end, the entire instrument being about two feet long. It is played by striking the skin with the palmar surfaces of the fingers, the sound produced being somewhat similar to that of our own drum. The drum is used in dancing and in mourning for the dead. Mr. D'Albertis found the same drum among the natives of the Fly River, but of a very much larger size.

The Cape Possession people have a different, and much inferior drum. It consists of a piece of bamboo about two feet long, with a tongue cut in one end and extending to the middle. The sound is produced by striking the tongue with a stick, which makes it vibrate and produce a dull note.

The bibo is a small insignificant wooden instrument, more like

a knitting-needle than anything else, from which even a native can produce only an almost inaudible sound.

The Koitapu make a rude kind of cloth from the bark of the paper mulberry, but with this exception no native cloth is made.

The Motu have no god or gods, no belief in a Supreme Being, no religious observance, and no sacrifices or offerings. In introducing religion, therefore, it has to be built up from the foundation, and cannot be presented, as in some other countries, as a perfect system to take the place of one which at the best, is full of superstition and error. This absence of religion is the more remarkable as they believe in the immortality of the soul: hence in spirits. The Motu are a highly superstitious people, as is evidenced by many of their customs; as the use of the kepure in war.

What has been said of the heart generally is most true of this people, they are "deceitful above all things and desperately wicked." Deceit and lying seem to be part of their very existence. Children display a propensity for stealing as soon as they are able to walk, as though it were instinctive. They steal as readily from each other as from strangers, nor is it looked upon as a crime unless the thief is taken in the act, when he is severely handled. When a theft has been committed, although the thief is known, the owner of the article takes no steps for its recovery. Plantation robberies are frequent, and when they occur the woman who tends the plantation goes down to the village, and standing a little distance from it, abuses the community generally, and the thief in particular, at the pitch of her voice, and in as strong language as she can command, and at the best they are not noted for refined expression. The people of Tatana, a small village near Port Moresby, have no plantations, and so they live by plunder.

It has been said of the Malay race generally that they are an undemonstrative, impassive people. This is eminently true of the Motu; they take everything in an easy matter-of-fact way, except when a quarrel occurs, when the excitement is quite out of comparison with the cause. Presents are received as dues, the recipient not expressing any thanks or even looking at them, but more generally hinting in a quiet suggestive way of some other article he is in want of. They are most shamefaced beggars, and beg upon every occasion. Their maxim seems to be, "It is more blessed to take than to give," and they give all their attention to the "more blessed" side of their maxim. If by any chance you do get a present from a native, you are repeatedly told it is coming before it appears, and as often reminded of the fact after it is given, and each time the subject is mentioned you are expected to show your thanks to the donor in a tan-

gible way. It is therefore cheaper to buy things in New Guinea than to receive them in presents. A present is sometimes taken back if a tangible acknowledgment of it is not speedily forthcoming.

In the "Contemporary Review," vol. xxi, page 397, the Rev. S. J. Whitmee of Samoa, in an article on the Malay and the black races says of the former there are only two conditions when they are noisy and excitable, "when working in great companies, they make a great noise ; and in war they are furious." This is true also of the Motu. In the same article, ingratitude, circumlocution in speaking, kindness to children, freedom and carelessness in boating, are mentioned as characteristic features of the Samoans : these are also applicable to the Motu.

Prominent in the character of the Motu is what may be termed a conservative tendency. The Motu does a thing simply because his father did so. The idea of change, a departure from use and wont, seems never to enter their heads. This is observed, not only with respect to foreign things, but also their native customs ; take for example the manufacture of lime. This article is highly valued, because it is used in chewing the betel-nut. It is made by the Koiari, or inland tribe, who come down from the interior to Port Moresby, gather shells on the beach, carry them twenty miles inland, burn them and make lime, then carry the lime down to the coast, and sell it to the Port Moresby people. The latter will not make it for themselves, because their forefathers did not do it, and it is done by the Koiari. If such a feeling exists with regard to their own produce, it is easy to see how it will operate against the introduction of things foreign.

They admire all our things, understand and admit the utility of all of them, allow readily that we do things very much better than they, but there it ends. "The English know a great deal, but the Motu are foolish and know very little." The idea of trying to improve themselves, of adopting anything new, is quite foreign to them. They appear to look upon all outside of them as essentially distinct. The bearing of this feature upon the introduction of civilization and the Gospel will be readily seen, it is almost an insuperable barrier. Our religion is a very good one, they do not dispute that, but it is *our* religion, they have their own way, with which they are quite satisfied ; we are a different people, hence our different customs. Here the matter ends ; they agree to differ from us. Moreover, our religion comes to them bound up with certain restrictions and restraints which they are unwilling to adopt. It demands the use of more clothing than they have from time immemorial deemed sufficient, it imposes a restraint upon one day in seven, when the ordinary avocations of life, hunting and fishing, must not be pursued. If

they accept our religion, therefore, they are fettered, and not as free as in their old régime, so no wonder they say "the old is better." They have no religion, do not feel the want of one, and therefore the only question with them is the practical one, which has its supporters even in our own country, "Is it worth the trouble? Will it pay?" Any higher considerations are very far from their mind, at least for the present.

There is one foreign habit which the Motu have adopted: this is the use, with them also the abuse, of tobacco. The weed is largely used by men, women, and children; mothers give it to their infants to make them sleep while they are away at their plantations. Tobacco is not cultivated by the natives, nor does it grow wild; they depend for their supply upon foreigners, who have evidently introduced it. It is not used by the natives of Cape Possession, Yule Island or Hood Bay. Since the Mission was established at Port Moresby the people have received their entire supply of tobacco through the Mission, and their name for the Mission vessel is "The Tobacco Ship." Mr. D'Albertis, in his recent exploration up the Fly River, found tobacco largely cultivated and used by the natives, who also use it as an article of barter.

The baubau, or tobacco pipe, does not resemble our pipe in any particular; it consists of a piece of bamboo about two feet long, open at the one end, and having a small lateral hole near the other end. The tobacco to be smoked, with a leaf rolled round it, is stuck into the small lateral hole and lit. The mouth is applied to the other end, and the air is exhausted from the bamboo by suction, tobacco-smoke taking its place. When the tube is filled with smoke the plug is removed, the mouth is applied to the small hole, and a good "draw" is taken, the smoke being swallowed. The pipe is passed round, each one taking a draw in this way till it is empty, when the process is repeated. A boy is generally employed to fill the pipe for his elders. The natives have become slaves to the weed, and will rather want anything than their smoke, in fact, when food is scarce, they almost live upon tobacco.

The Motu are dirty in their habits, and as they seldom or never wash themselves their bodies are caked with dirt. When in close contact with them an unpleasant odour is perceptible. Their huge mops of hair favour the breeding of lice, which they search for, catch, and eat from each other's heads.

Their villages are not clean, fæces and all manner of offal being deposited in every direction; the pigs and dogs also being allowed to run about the village. In sleeping they use no pillow except what is furnished by their arms, and generally no covering, although a calico sheet is valued by them. Their

favourite posture when resting about the village, is sitting upon their heels with their toes resting on the ground. The women and children usually sit on the ground with their legs straight out in front. When visiting in a European house they choose the best seat, being partial to an armchair or sofa, and never squat upon the floor in token of respect, as do the South Sea Islanders.

They have no marriage ceremony. Ten white shell armlets, two shell necklaces (about a yard long), a pig and an axe are given by the bridegroom to the father of the bride, and he takes his wife home.

They do not always marry in the same village, but the people of different villages intermarry. If the young wife does not consider she is well treated, she does not scruple to leave her husband and return to the shelter of her father's house.

The natives have one name only, and it is generally the name of a common object: Boroma (a pig) and Makani (wallaby) being women's, Kaba (a drum) and Ila (a hatchet) men's names.

The Motu do not appear to have any form of Government. Every village possesses a certain number of chiefs, the eldest of the number generally having the most influence. The office is hereditary, descending from father to son. The distinction between the chiefs and those they are chiefs over we cannot yet determine. The chiefs as a rule possess little or no authority, and have little power in quelling disturbances, their advice is, however, taken in any matter affecting the interests of the village. At Kerepunu the chiefs have more authority than at Port Moresby.

Their public meetings appear to be held while they are all in their houses, the speaker sitting in his own house, shouts out what he has to say, so that the whole village may hear.

The land round the villages is owned by the villagers, the chiefs having more than others. It is a difficult matter to find the right owner of any land; and unless great care is taken its price will have to be paid over and over again to each new claimant.

The domestic animals of the natives are the dog and pig. The dog is a small, thin, sharp-nosed, yellow-coloured animal, allied to the Australian dingo, but evidently an inferior type. It never barks, but whines hideously; the dogs of a village all whine in chorus. They are great thieves, like their masters. The natives value them not only for food, but especially for wallaby hunting.

The New Guinea pig is a long-legged, long-snouted pig of a deep brown colour, striped with yellow. There is a young specimen in the British Museum. It is highly prized for food.

In some villages red and green parrots and cockatoos are kept on sticks outside the houses. These birds are kept on account of their feathers, which are used for ornamenting their shields, &c.

The wallaby when young is sometimes trained and kept as a pet in the house.

The fauna of New Guinea has as yet proved to be similar to that of Australia, with one or two exceptions. The wallaby, cuscus, flying phalanger, bat, bandicoot rat and different snakes are found. Snakes are not so abundant as in Northern Queensland, nor are they so dangerous, there being only one venomous species known.

Just on leaving Port Moresby a new animal was brought to Mr. Lawes from the interior. We were not aware of its existence before, and the natives had never spoken of it. The specimen was a young one: the animal has a duckbill, small eyes, burrowing feet, and bristles over the body. Mr. Lawes preserved it in spirits and sent it to Prof. Rolleston of Oxford. It has been described as *Echidna Lawesei*.

Several Lepidoptera and insects in my collection prove to be new, and have been incorporated in the British Museum collections.

The language spoken by the Motu belongs to the Malayo-Polynesian class, and is characterised by its softness and absence of inflection. The coastal villagers speak the Motu with an occasional divergence in particular villages, while the language of the Koiari is quite distinct. At Hood Bay (Kerepunu) a different dialect is spoken, which bears a strong resemblance to the Motu. In his voyage to China Straits, Mr. Lawes was struck by the increasing resemblance of the dialects spoken to the Samoan as he went further east, a resemblance not in root forms only, but in words, a fact which favours the supposition that the south-east peninsula of New Guinea has been peopled from the east.

The Motu dialect has been reduced to writing by Mr. Lawes. It contains an alphabet of eighteen letters. The language is a full one, but bald, the nouns being indeclinable, and having neither gender nor case, the verbs no moods or tenses, time past, present, and future being gathered from the context. There is a dual and two plurals, inclusive and exclusive.

In the formation of words there is a marked tendency to the repetition of syllables, as bobobobo (to jet out), kokokoko (nail), kololokololo (all). The comparative and superlative are expressed by repeating the positive or emphasising it.

In no case do two consonants occur together, there is always a vowel between; but in the case of *t* it is often pronounced *ts* as

in *ate* pronounced *atse*, the letter *s* is also sounded *ts*. The aspirate is often used before words beginning with a vowel, there is no rule to regulate its use; *r* and *l* are as a rule interchangeable, as *revareva* or *levaleva*, tattooing. In some cases the natives of a particular village are distinguished by some peculiar pronunciation, as in the natives of Tatana, who use a nasal *n* for *l*, *nasi* instead of *lasi*, *no* and *naw* for *lau*, &c.

In the construction of the sentence the verb is placed last; in questions the interrogative is usually, though not invariably, last.

There are neither articles nor conjunctions; but particles as *to*, *e*, *ai be*, and suffixes *na*, *mu*, *ku*, which have no meaning, but are used for the sake of euphony and idiom; sometimes the latter denote the possessive.

The only change in the verb is in the prefix *a* to indicate the causative, as *dipa* to know; *adipa* to cause to know. In these cases the prefix is followed by the passive suffix, so *adipa* becomes *adipaia*.

The word *vata* is sometimes used as the sign of past or present time, but it is more generally used with particular words, as *mate*, death, always takes *vata*. The use of this and one or two similar words is strictly idiomatic.

The use of the negative instead of the positive is characteristic of the Motu, *malaki lasi* not little, to denote great. A positive and a negative are often used together by way of strengthening an assertion. The numerals run up to a million. There are no names for the days, but there is a word for year, and the year consists of twelve named months. The hours of the day are marked by a reference to the position of the sun at that hour. The new moon is hailed with joy, all the children making a noise by clapping their hands and their lips as they shout.

Mr. Lawes has compiled with much care a vocabulary of over 900 words which he will, doubtless, publish with a record of all his travels on his return to England next year.

He has also translated several hymns into the Motu, and commenced a Scripture History; a small lesson book has also been printed in the language. Specimens of these translations are given to show the construction of the language.

The connection between the Motu, Malay, and Polynesian dialects will be seen in the following table:—

ENGLISH.	MALAY.	POLYNESIAN.	MOTU.
Bird	Manu	Manu	Manu
Cocoa-nut	Nyu	Niu	{ Kalu, young Niu, old
Come	Mai	Mai	Mai
Eye	Mata	Mata	Mata
Fruit	Bus	Fua	Huahua
Hand	Lima	Lima	Ima
Road	Dala	Ala	Tara
Woman	Bawine	Fafine or Vaine	Haine
Water	Wai	Vai	{ Rannu, cold Vai siahu, not.

Ane Toi.

Tilava Helaka oi mai,
Ai patipati na noho,
Oi namo siakau mia,
Taina mailaia, ai apia.

Hymn Third.

Holy Spirit you come,
Us besides—dwell,
You good plenty abides
A little bring, we have

Karoana taulabani. Sapati dina helaka Iesu hanua loa, ia tau
Division eight. Sabbath day sacred Jesus the town walked he a man
matakepulu itaia. Iesu memero ia enanatai itia Koau, Lohiapata e,
blind saw. Jesus disciples him asked they said Chief!
matakepulu unai taika dike karaia, ia, ia tupuna ia unuheto
blind man there who bad make, he, his parents, he like that
vara, mata dike, hapopai lasi.
grow, eyes bad, bright eyes not.

The result of our work among these natives during the three or four years that the Mission has been in existence is very small—it is merely the sowing time. The only apparent change is that the natives live a quieter and more peaceable life. The residence of Europeans has had the effect of causing a more friendly feeling to exist between tribes which were previously at constant enmity. Even this is a step in the right direction and a thing to be desired, and is, doubtless, but the first step in a reformation as marked as has taken place in many of the islands of the sea. The greatest obstacle to the work in this country is the unhealthy climate, and it is a losing game to fight against fever and death. It is hoped that more healthy localities will be found in the direction of China Straits, and in the search for these Mr. Lawes is now engaged. Let us hope that the high hopes which were entertained concerning this field when it was commenced may not be damped, as they undoubtedly are, at the present time, by the future history of the work, but may they be more than realised.

DISCUSSION.

In reply to questions asked, MR. WHITMER said the Gilbert Islanders wear the skulls of deceased relatives suspended from the neck. A woman carries about in this way the skull of a deceased

husband or child as a token of affection. The grave was made inside the house occupied by the family of the dead person, and the body, placed in a sitting position, remained for some days but slightly covered, until decomposition had advanced far enough to allow the skull to be lifted off.

He could not say with what instrument the Motu shave their heads, but he had known sharks' teeth, sharpened shells, and strips of bamboo used for shaving in some parts of the Pacific.

In the Samoan Islands very little attention was paid to the graves of the dead, especially of the common people. All traces of most of them soon disappear. Skulls and bones are frequently found in digging where there are no indications of graves on the surface.

He did not know of anything like guilds for the protection of trades. But trades and manufactures were hereditary. The sons follow the trade or "profession" of their father as a matter of course.

The Samoans sometimes buried valuables with the dead. They did not bury implements and such things as might be supposed to be useful to the spirit, but highly prized garments or fine and costly mats. These were intended as a mark of affection for the deceased. A few years ago, on the death of the King of the Hawaiian Islands, a very costly feather mantle, worn only by royalty, was buried with him. He believed only one other mantle of the same kind remained in the islands, which made the offering the more valuable.

The PRESIDENT then read the following paper, and exhibited a series of chert implements, illustrative of his remarks.

On a DISCOVERY of PALÆOLITHIC IMPLEMENTS in the VALLEY of the AXE. By JOHN EVANS, D.C.L., F.R.S.

In the Albert Memorial Museum at Exeter may be seen a large number, some 50 or 60 in all, of Palæolithic implements, collected by the energetic curator of the establishment, Mr. W. S. M. D'Urban, F.L.S.

They have been nearly all procured from workmen on the London and South Western Railway, and there can be no doubt that they were found among the gravel with which the line for some miles in the neighbourhood of Chard is ballasted.

The material of which they are made is not chalk-flint but chert, in all probability derived from the Blackdown Beds. In form they closely resemble the ordinary types from the valley of the Somme and other well-known Palæolithic deposits, but the prevailing type is a somewhat flat ovoid. There are a few of the pointed spear-head form, but these are not so abundant.

This may perhaps be connected with the difficulty of working chert into form, it being of a less tractable nature than chalk-flint. Among chalk-flint instruments, however, the sharply pointed forms are considerably rarer than those in which the point is rounded. Several of this variety of implements are obliquely truncated at the base, and on one of them a fragment of fossilwood is adherent. There is one specimen of what has been called the perch-backed type. Some of the specimens are considerably rolled, while others retain their edges and angles as sharp as if recently made.

The gravel in which they were found is all stated to have been obtained from a pit at Broom, in the parish of Hawkchurch, near Axminster, in the county of Devon.

In company with Mr. D'Urban and Mr. H. S. Ellis of Exeter I have visited the spot, which is about a mile and a half from Chard Junction, and three miles from Axminster, the pit being close to the main line, and on its southern side. An enormous amount of gravel has been extracted, and a fine section is still exposed. The pit at the present time is worked at two levels, the section at the upper level being about 40 feet in height and that at the lower level about 8 feet in height. This lower pit is carried down to the level of the water, which is presumably but little above that of the river Axe, which flows by at no great distance. It has not been ascertained how much deeper the gravel extends, nor on what kind of rock it lies. The valley, however, is at this point cut through the lower lias, which is worked for lime, between Broom and Axminster. A nearly north and south line of fault is shown on the map of the Geological Survey as passing about $\frac{1}{4}$ mile south-west of Broom, and possibly there may have been some disturbance of level since the deposit of the gravel.

The section shows that this deposit is roughly bedded with some sandy and marly seams intercalated in which numerous grains of glauconite may be distinguished. I looked in vain for any traces of land or freshwater shells, though perhaps a longer search might be rewarded by their discovery.

There is a fair proportion of large stones in the gravel, but it can hardly be described as being in any places very coarse in character. Still, the very considerable number of large pieces of chert which are in the ballast upon the railway, prove that in some parts of the pit they must have been abundant. Mixed with the pebbles is a large proportion of sandy matrix. The pebbles themselves are for the most part of chert, and sub-angular, the angles of some however being sharp. Besides chert, probably from the Blackdown Beds, I noticed a few chalk-flints, some pebbles of hard chalk, and a few of quartz and clay

slate. It may be observed that the chalk occurs *in situ* at about three miles distance resting on the Blackdown beds, between which and the Lower Lias the marls now crop out.

So far as I am able to ascertain no mammalian remains have as yet been found in the Broom Pit, but the character of the gravel and of the implements will justify us in classing this deposit among the other well-known implementiferous beds of the quaternary age.

The principal points of interest in the discovery are the extension of the area in which palæolithic implements have been found in a westerly direction, and the large accession now made to the number of these implements formed of other materials than flint from the chalk.

It is true that at the time of the publication of my "Ancient Stone Implements" I had already received information from Mr. Stevens of Salisbury of the discovery of two or three chert implements in the neighbourhood of Chard by men employed in the erection of the posts for the telegraph. These are now in the Blackmore Museum. I had also in my own collection a pointed chert implement from the Bournemouth gravels. Since that time I have met with two or three specimens in the same material from the extension of the gravels of the old valley of the Solent in the neighbourhood of Barton. Some other chert implements from the Broom Pit are, I believe, now in the Blackmore Museum; but no such series as that collected by Mr. D'Urban is to be found elsewhere than at Exeter. Such a series proves that, as was the case with the makers of the quartzite implements found in the lateritic beds of Madras and in the valley-deposits of the neighbourhood of Toulouse, the occupants of this country in quaternary times contented themselves with the best silicious rock which came to their hands when chalk flints were scarce, and were able to make from the new material instruments almost identical in form and almost equally serviceable with those of flint.

Although so large a number of specimens has been collected by Mr. D'Urban's exertions, it must not be supposed that these chert implements are abundant in the gravel, or that the South-Western line can be said to be ballasted with them.

We were a party of six when we visited the Broom Pit, and our search there was quite unavailing. An examination of the ballast on the line for about five miles resulted in the discovery of two wide flakes only, and the large but not handsome implement which I now have the honour of exhibiting. Of its artificial formation there can be no doubt, but as to the purpose to which so clumsy and heavy an instrument was applied it seems hardly safe to speculate.

NOTES ON THE ZÁPAROS.* By ALFRED SIMSON.†

THE name Záparo signifies a kind of basket made of double wickerwork of split "bejuco" (Liana), with waterproof leaves between, and a lid of the same material to cover it; used by the Upper Napo and Záparo Indians to keep their clothes or chattels from wet.

The Záparos occupy chiefly the Curarai and its tributaries the Nushinu, Nuganu, Supinu, etc.; the main river Napo in the neighbourhood of Sinchichicta, and the Yasuni.

Their language is unpleasant to the ear, and its sounds are very indistinctly rendered, making it a very difficult, and to a stranger at first an almost impossible, task to define and catch the exact pronunciation of their words, many sounds being, as it were, withheld in the mouth.

Each word of a vocabulary of the language which I have formed, was a labour in itself, and some correctness could only be attained by frequent use with the natives of a word once picked up and understood. Continued questions to these Indians appear to them trivial, and only call forth random and useless answers. As later on it was my good fortune to meet an intelligent person who spoke Spanish, and was a stranger, but who had lived with them and spoken their language from childhood, I was able to revise all my pronunciations.

They have the fame of being the most expert woodsmen and hunters, and are very particular in keeping up their activity and precision in throwing the lance, with which they are most dexterous in offence and defence, guarding themselves with such perfection that almost a shower of spears is warded off by a single individual. They keep up their practise not only in the necessary and frequent use they make of their weapons in hunting, but also in occasional human onslaughts, and in private exercise amongst themselves. Besides the lance, they also use the blow-gun, but as they do not make poison themselves, and are most irregular and needy traders, they are often short of this necessary for their darts, and so have to fall back upon the lance. They are also dexterous fishermen with nets.

Their perceptions of eye and ear are perfectly marvellous, and surpass the Napos considerably. Their knowledge of the woods is also so perfect, that they frequently travel by night in unknown

* All the Indian words and names are to be pronounced as Spanish.

† Read at the meeting of the Institute, November 27th, 1877, but omitted in the last number of the *Journal*, in consequence of the Author's absence from England.

parts. In seeking game they detect sounds and footmarks where white men can see and hear nothing. At a glance they know the number of animals, and the time they have passed, though the tracks may be on loose leaves nearly all the time! But what to me has appeared the most marvellous in following game with these and other Indians, is that they suddenly stop, and, as if meditating a moment, wave their hand in the direction in which one sees the trail proceeds; then waving it crossways, as the case may be, as if mentally following the animal's course, seem to make up their mind as to the direction taken by the game, and start off away from the track, but only to come upon it again by a shorter cut! This, it must not be thought, is done only upon ground well known to them, but occurs in spots where they have never placed foot before.

Their cat-like motions, the ease with which they in their bare skins and feet make their way scathless through thick, entangled underwood and thorns, and their silence, impress one with the true qualities necessary for successful hunting. To communicate with one another in the wood they generally imitate the whistle of the toucan or partridge.

Very particular in their diet, they will, unless from dire necessity, in most cases not eat any heavy meats, such as tapir and peccary, but confine themselves to birds, monkeys, deer, fish, etc., principally because they argue that the heavier meats make them also unwieldy like the animals who supply the flesh, impeding their agility and unfitting them for the chase. Here we find the belief, common amongst many savages, that they partake of the nature of the animals they devour.

Being efficient hunters, they consume a much greater proportion of animal food than their neighbours the Napos, who stand in respect and fear of them, but despise, or affect to despise them, as infidels, behind their backs, for the Záparos belong to the great division of non-salt eating un-christianized Indians of the Oriental Province of Ecuador, and are branded by the others who are baptized, make regular journeys to Chasúta for salt, and speak Quichua, as "Aúcas," which title seems to signify heathens, savages, barbarians.

When Záparos meet Napos, they never take the least notice of each other, and may stand together for hours without exchanging a word or the compliment of proffering "chicha," which is always practised in meeting "individuals" of their own tribe, however much unknown to them personally.

For their hunting they keep dogs, which although very unsightly, miserable-looking animals, are well up in their duties of tracking and driving game. It is considered on the Napo sufficient recommendation for the good hunting qualities

of a dog, to know that he belongs or has been trained by a Záparo or Piojé, as useless animals are never retained by them. The method they sometimes use for training the dog is somewhat novel: he is taken out hunting, and if found not to have a good scent and naturally to fulfil his duties, he is led home again and receives a dose of tobacco down his throat, and his nose and mouth are then also stuffed full of it until he nearly chokes; this is to clear his scent and sharpen his perceptions. He is then taken out again, probably the next day, with much harsh treatment, and if no improvement is shown, is discarded or completely choked.

Tobacco is amongst all the Indians of the Upper Napo region the sovereign remedy for almost all ailments, and is drunk in large quantities mashed in water.

The Záparos are by no means the apathetic, peaceful race they have sometimes been pictured, probably on account of their wretched and miserable appearance, upon a slight acquaintance by some travellers. When unprovoked, they are, like most wild Indians, very shy and retiring, but are perfectly fearless, and will suffer nobody, either whites or others, to employ force with them. They can only be managed by tact, good treatment, and sometimes simple reasoning, otherwise resenting ill-treatment or an attempt to resort to blows with the worst violence.

At all times they are changeable and unreliable, betraying under different circumstances, and often apparently under the same, in common with so many of their class, all the most opposite traits of character, excepting perhaps servility and stinginess, which I never observed in them. The absence of the former is a characteristic of all the independent Indians of Ecuador, and the latter when absent may, I think, be looked upon as based more strongly upon improvidence and apathy than active generosity.

One of the most prominent traits of this remarkable people is their tendency to, and marked enjoyment in the destruction of life. They are always ready and willing to kill, be it animals or human beings, and delight in such occupation; the only exception I noticed being alligators of the larger kind, to which the Supinu Záparos with whom I travelled, manifested a strong disgust and would not touch, though a smaller species is eaten by them and all the Indians of the Upper Pastassa, Napo and Putumayo. Still, though they would not take part in the sport, they enjoyed seeing the huge reptiles slaughtered far more than some Napos, who on that occasion were present. But an invitation to follow and track out Napo Indians who may have to be searched for by the authorities or missionaries (from whom they themselves, however, accept no authority),

or to enter the territories of any hostile tribes when there might be a prospect of plunder and perhaps violence, is accepted by them with a sort of grim pleasure and agreeable anticipation, manifestations of the mind so difficult to produce and rare to witness in any Indian.

In descending the Napo, the days and nights passed in the territories of the terrible Auhishiris on their side of the river, where other Indians would not have ventured on any consideration, they seemed to be in higher spirits and more contented than at any other time, and lay down to sleep on the sand, without roof and all but naked, each sandwiched between their small fires, with light hearts, after having scraped the points of their lances of "chonta" and bamboo, and stuck them in the sand by their sides.

On a previous occasion some of them were asked if they had any dried human heads like the Jivaros, to which they answered in the negative, adding that if desired they would kill some Nushínus and bring theirs. Of course this was prohibited and the idea strongly discouraged.

The Záparos are very disunited, and wander about in separate hordes, the worst of which is probably that of the Supinu.

These are the terror at times of the Nushínus and Mautás, the former of which, as I was informed, they not long since fell upon, killing many of the men and robbing the women, children and their chattels, the second either for use as servants or for sale.

A boy or girl stolen by them is currently sold to traders for, say, a hatchet, a knife, a couple of yards of coarse lienzo, a few fish-hooks, needles and thread, or any special article they may most stand in need of, the whole value generally not exceeding eight to ten shillings.

The stealing of women is much carried on even amongst themselves. A man runs away with his neighbour's wife, or one of them, and secretes himself in some out of the way spot until he gathers information that she is replaced, when he can again make his appearance, finding the whole difficulty smoothed over. In their matrimonial relations they are, as indeed in the practice of all their customs, very loose—monogamy, polygamy, communism, and promiscuity all apparently existing amongst them. Entirely contrary to other neighbouring tribes, they are not at all jealous, but allow the women great liberty, and frequently change their wives in the manner above-named, or by simply discarding them, when they are perhaps taken up by another. Of course all the hardest work is done by the women.

Courtship is sometimes carried on in a novel manner. The matrimonially-inclined swain goes into the woods and hunts.

On his return his sport is thrown at the feet of his elect, and immediately afterwards sufficient firewood for cooking the same. Should she rise and employ herself in cooking his game, and they are seldom backward in taking plain hints in this direction, he may consider himself an accepted suitor, but should she disdain his offer, he may yet find consolation in the shape of some other squaw who may step forward more charitably, and take upon herself the culinary and other consequent duties. But matrimonial engagements are not always made in this way, for, as already stated, women are frequently taken possession of by force, and though they, sweet inconsistencies, may sometimes object, they do so all the time *consenting*, and making no virtual difficulties.

Their disposition is, when nothing special occurs to annoy them, happy, and when they are together at their meals, and one has gained their confidence, chat and laugh a great deal, which latter our Záparos did with us upon the smallest incitation, maintaining though, at the same time, some shyness when in direct and immediate contact with us.

Like all ignorant savages, they are very superstitious, and this forms the base of almost all their disagreements and quarrels. For instance, if one of them dies or falls ill from natural causes, his death or illness is almost sure to be attributed to sorceries exercised upon his person by some secret or open enemy, and his friends often take revenge accordingly. Of course the man held in most awe is the medecine man or "shimáno," as he is called, who is more clever than the others in maintaining the idea of his capabilities to exercise sorceries and cures, and in consequence the others are afraid of incurring his evil influences, and fear to do him harm, all of which strengthens his own opinion of his powers. Any illness or pain is frequently attributed to an enemy having stuck invisible darts into the sufferer, and the medecine man will then be resorted to, and he extracts them from the patient's body by suction with the mouth, and exhibits them just as the clumsiest conjuror might do with us, having previously concealed them in his mouth or about his person. Even the "shimáno" himself, I firmly believe, does not think or know himself to be in reality an impostor; his mind is so low that he entertains a kind of superstitious belief in his own shallow, deceptive practices, if indeed he has any belief on the subject at all, which seems to me very doubtful.

The Záparos believe in a devil or evil spirit, which haunts the woods, and call him "Zamáro," but whether they also believe in a good spirit or creator, I could not ascertain. In all probability they entertain the usual Indian idea in these parts, of trans-

migration or metamorphosis: the valiant men into tigers or jaguars, and the pretty women into beautifully-plumaged birds; others into the animals most akin to their own characters; the jaguar and beautiful birds, however, always occupying the highest and most desired positions after dissolution of their human form.

When a mother having a very young child dies, the child is sometimes buried with her alive, as in a case brought to my notice.

A man labouring under chronic disease, and showing after a long period of time no signs of amelioration or getting about again, is not unfrequently throttled by his friends, after their having held a consultation declaring him to have become a useless member of society and a burden to his family.

The Supínus are in great fear of a single Jívaro who has sometimes appeared amongst them, as always usual by night, for the purpose of robbery. They do not dare to avenge themselves upon him, apprehending that if they were to do so, the Canelos and other Jívaros might call them to account for it, by falling upon them. Many of them, otherwise fearless, once appeared at Aguanó, fleeing from the "little one" as their Jívaro enemy is called.

Their industry is very low, and they are consequently very poor and almost nude; in their homes entirely so, as also when hunting at all times, excepting a single thin string girt around their loins. Hammocks, game bags, and "llanchamas" are their only productions.

Like the Piojés, they are addicted to drinking "ayahuásca," though not "yoco," in place of which they chew "guayúsa," a leaf with properties similar to the well-known "coca." The first produces the most intense excitement, and not unfrequently leads them into quarrels and violent broils, ending in extreme exhaustion and depression.

They have several distinct denominations for different stars, but in what their distinctions consist, I could not make out. Time is always indicated by showing the height of the sun, or the moon's rising.

The seven Záparos selected to perform the journey with us from the Upper Napo to the Marañón, were all summoned into our dwelling to receive their payment. The two chief ones destined to steer our two larger canoes, *i.e.*, the one who had brought all of them to us, rejoicing under the name of "Siso" (mange), and the medicine man, or "shimáno," called "Cúri" (gold), received thirty varas of lienzo each; "Rúmi" (stone), "Atiójo" (mosquito), and one whose real name they would never tell us, doubtless on account of its being one they did not

feel proud of, as frequently occurs, twenty-five varas each; and two young ones of probably about seventeen or eighteen years of age, though strapping young fellows, "Ushámi" (large eyed), and "Ashiñájá" (pium fly), twenty varas each.

If we had given them each considerably less it would have been just the same, for such a quantity of cloth they had never before received at one time, and its length went utterly beyond their powers of calculation. They all stood huddled together, very shy, and as villainous looking a set as I ever beheld.

Siso was bald, squinted, and his skin blotched with black and scaly, the result of a skin disease common to all Indians of the higher Marañon, called "caráte." The "shimáno," his brother, was even worse looking, having a stronger squint, his long hair all matted over his head and face, and a halting gait, as on their journey from the Supínu he had been wounded by a skait on one foot. Rúmi was a tall finely-made man, but could never divest himself of a cut-throat expression of countenance, and eyes which always avoided straightforwardness in direction and expression. To the "No name," although of quite different physique, the same description would apply, though he betrayed more of the Mephistopheles, whilst the former developed more of the Bill Sykes cut.

Atiogo, Ashiñájá (Rúmi's brother), and Ushámi, the three younger ones, were not so bad as the others, but were far from being Apollos, or even as good looking as the average of Napo Indians. Siso and Rúmi had five wives, two each, and one in common. All of them were almost naked, their faces hideously painted in the most diversified manner, and without any regard to symmetry, some simply smeared all over with bright red, others with bluish-black; the women in scanty, miserable rags, and the children "en cuero." Altogether, they seemed to care less for ornamentation of their person than any other Indians I had seen, only one of them having a necklace of monkey's teeth. And these were to be our travelling companions!

The force of habit is great, for after enjoying their companionship for a few days, notwithstanding some trouble they caused us, we soon got accustomed to their evil looks, and by the time our journey was ended, I felt quite sorry to leave them, and would gladly see these poor miserable and murderous savages again; for murderous they are, being the identical ones who had made the onslaught already spoken of upon another horde of their tribe for the sake of robbery and violence.

Each of our chosen guides was called forward to hold the stick upon which his "lienzo" was measured out to him, and the varas were counted out; Nucuáqui, 1; Anamishiñáqui, 2; Aimucuraqué, 3; Manucuaquicuajuótsa, 4; Manucuaquí, 5; and

Mánunu, Mánunu (many, many). All above five is simply expressed by "Mánunu," for few Záparos grasped the number expressed by the exhibition of both hands, and still less hands and feet.

As each one received his payment, as if in wonder when we were going to stop such interminable counting, with the addition of a common hatchet, he slunk behind the rest to see the same performance gone through with his companions, and I am quite convinced that none of them ever knew that some had received more than others.

This ordeal completed, a woman of their horde, with whom I was well acquainted, gave them a most energetic exhortation, in which she told them that they must treat us and her son-in-law, who was to accompany us also, well, and on no account abandon us on the way, or in anywise fail to look after our welfare and safety on the journey, for, she threatened them, if they did not behave well and bring him safely back, they need never come to her again for lienzo, knives, poison, or any other necessity.

She spoke with great vehemence, and they evidently listened to her with attention and respect, appearing like school-boys under a severe rating for misconduct. She was the most intelligent of their horde, in fact remarkably so, and having married a trader, was often able to assist them and supply their greatest wants. They held her in great consideration, and looked up to her, allowing her great influence over them.

Upon reaching Iquitos on the Marañon, I was anxious to observe their impressions upon their seeing civilized wonders, but was rather disappointed, though I had naturally not expected much enthusiasm to be manifested.

Fine houses, large steamers, iron works, &c., apparently hardly attracted their attention, and caused them no astonishment, but what called forth all the interest they were capable of showing were the cows and horses. They who thought that every animal was familiar to them, had never dreamt of such as these! And when they saw me suddenly approach sitting astride a huge animal, far taller and more formidable-looking than the tapir, who was prancing and plunging, they escaped into the house and shut the door, but could not resist peeping out through the chinks in the greatest excitement I had yet seen them. They were also markedly pleased at a steam band saw; to see wood cut into almost any shape, as if it were quite soft, whilst with their miserable implements the same work was so laborious. The larger and circular saws seemed too much for their comprehension.

All the peculiarities and characteristics noted in the fore-

going article should not be, and I think this rule probably applicable to the portrayal of the habits of all savages, looked upon as fixed and established customs from which no deviation will be found. Quite the contrary, as certain peculiarities are manifest and occur before some observers, entirely antagonistic or inconsistent ones may be noted by others, and thus doubt may fall upon the reports of all.

But although I will not deny, nay, can even strongly affirm, that many observers are too prone to give the interpretation of their own feelings to social and even many natural phenomena, I would wish it to be borne in mind when savage customs are being treated of, the inconstancy, fickleness, contradictoriness, inconsistency, vagueness, and superstition which pervade the savage's mind and actions.

In the discussion on the above, Mr. M. J. Walhouse, Mr. Blackmore, Mr. Hyde Clarke, Major-General A. Lane Fox, Mr. Distant, and Mr. Hartshorne took part.

DISCUSSION.

MR. WALHOUSE said: Amongst reticences as to names, it may be mentioned that it is considered highly indecorous for a respectable Hindoo woman to pronounce her husband's name. This has often caused much embarrassment in law-courts when a woman has been examined by an European officer, unaware of the scruple, and desired to state who her husband is, she is thrown into great confusion, which the judge often misunderstands, and insists on an answer. A late Chief Justice in the Supreme Court at Madras once desired a woman to name her husband; the witness hesitated, and spoke aside to the interpreter, when the Chief Justice angrily insisted on knowing exactly what she said, the poor Brahman, after several evasions, being hard pressed, at last faltered out, "Please my Lord—she says—my Lord—that your Lordship has got no shame."

MR. BERTRAM F. HARTSHORNE remarked that it was characteristic of some of the people of the South of India to avoid scrupulously the utterance of certain particular names; and he referred to an instance which had come within his own experience of a Tamil man of low caste who had, in the witness-box of a court of justice, persistently denied that he had the slightest knowledge of the name of his own brother—a man with whom he lived. It ultimately transpired from another source that this brother's name was Muniandi, the designation coinciding with that of the "swami," or tutelary deity of the witness himself. It would appear that the reason why such a name should not be openly mentioned was probably somewhat similar to that which is assigned by Herodotus: It was something *οὐχ ὁσιον εἰπεῖν*.

ANNUAL GENERAL MEETING.

JANUARY 29TH, 1878.

JOHN EVANS, Esq., D.C.L., F.R.S., *President, in the Chair.*

The notice convening the meeting was read.

The minutes of the previous anniversary meeting were read and confirmed.

The TREASURER presented his Annual Statement of Receipts and Expenditure for 1877. On resigning his office, at the expiration of the period for which he had undertaken to hold it he congratulated the Institute on their freedom from debt. This result was due to the measures adopted by the Council two years ago, aided by strict economy in the office expenditure. In accordance with the wish expressed by the Auditors, that the total indebtedness of the Institute on the 31st of December should be given annually, Mr. Park Harrison stated that it amounted to £122 8s. To meet this there were, independent of the unsold Stock, Museum, and Library, the cash balances, £106 4s. 10d., and overdue subscriptions of uncertain value, but more than sufficient to cover any liabilities.

Mr. E. W. BRABROOK moved, and Mr. R. B. MARTIN seconded, the adoption of the Report, coupled with a special vote of thanks to the retiring Treasurer.

THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Statement of Accounts for the Year ending 31st December, 1877.

RECEIPTS.

BALANCE, 1st January, 1877:	£	s.	d.	£	s.	d.
At Bankers, Roberts and Co.	57	8	4			
In hand	1	4	6	58	12	10

SUBSCRIPTIONS:						
Paid to Roberts and Co.	70	7	0			
" for 1878	6	6	0			
" Collector "	485	2	5			
" due 1876	60	18	0			
" Compositions	42	0	0			
" In advance	6	6	0			

ILLUSTRATION FUND:				670	19	5
Maj.-Gen. A. Lane Fox	5	0	0			
F. G. Hilton Price and J. E. Price	4	0	0			

SALE OF PUBLICATIONS:				9	0	0
Messrs. Trübner and Co.:						
Journal, 1876-77	75	8	0			
Messrs. Longmans and Co.:	2	15	10			
Publications of Institute						
Office:						
Journals	7	0	6			
Other Publications	7	2	0	92	6	4

£880 18 7

We have examined the above Cash Receipts and Payments, and find the same correct.

(Signed) CHARLES HARRISON,
C. H. E. CALMICHAEL.

PAYMENTS.

RENT, to Michaelmas 1877	£	s.	d.	£	s.	d.
PRINTING:						
Journals, Nos. 17 and 18	109	12	0			
" 19 and 20	120	6	6			
Miscellaneous	21	4	0	251	2	6
LITHOGRAPHY:						
Kell and West, to December, 1876	88	12	0			
Kell, Macture, Enslie, &c., to Dec., 1877 ..	69	10	7			
PHOTOGRAPHY:						
Edwards	108	2	7			
SALARIES:				8	10	0
Clerk	96	9	6			
Collector's Commission	88	5	11			
POSTAGE:						
Journals	20	12	8	129	15	5
Letters, Circulars, and Post Cards	14	14	10			
ADVERTISEMENTS:						
Street, for 1876	9	11	6	85	7	1
" to September, 1877	9	4	0			
MISCELLANEOUS:						
Binding	6	1	6	18	15	6
Books and Maps	1	2	6			
Subscriptions to two Congresses	1	0	0			
" London Library	8	0	0			
Stationery, to June 1877	6	8	0			
Furniture	2	18	0			
Receipt and Bill Stamps	2	5	5			
Reporting	2	0	0			
Books, Papers, &c.	2	16	7			
Insurance and various	5	14	8	32	16	8
HOUSEKEEPER:						
Gratuity for 1876	15	0	0			
Lights, Assistances, &c.	4	12	9			
Glazier, and Cleaning Windows	1	17	0			
CASH BALANCES:						
At Banker's	104	4	1	21	9	0
In Clerk's hands	2	0	9			

£880 18 7

Mr. B. F. HARTSHORNE and Mr. J. F. COLLINGWOOD were appointed scrutineers of the ballot, which was then declared by the President to be opened.

Mr. E. W. BRABROOK then read the Report of Council, for 1877.

*REPORT of COUNCIL of the ANTHROPOLOGICAL INSTITUTE of
GREAT BRITAIN AND IRELAND for 1877.*

The Institute has held fifteen Ordinary Meetings, and one Anniversary Meeting during the year, at which the following communications were read:—

1. On the Admiralty Islands. By H. N. Mosely, Esq., F.R.S.
2. On some Recent Excavations at Cissbury. By J. Park Harrison, Esq., M.A.
3. Report to the Anthropometric Committee on the 2nd Surrey Regiment of Militia. By Col. A. Lane Fox, F.R.S.
4. On the Development of Language. By Henry Sweet, Esq.
5. On the Classification of Arrow-heads. By W. Knowles, Esq.
6. On Primitive Agriculture. By Miss A. W. Buckland.
7. On the Portstewart Find. By W. Knowles, Esq.
8. On Non-Sepulchral Rude Stone Monuments. By M. J. Walhouse, Esq.
9. On the Himalayan Origin of the Magyar. By Hyde Clarke, Esq.
10. On Anglicising and Gallicising of Surnames. By the Rev. Hector McLean.
11. On Scottish Highland Language and People. By the Rev. Hector McLean.
12. On a Kitchen Midden at Ventnor. By H. M. Westropp, Esq.
13. On a Kitchen Midden at Tenby. By E. Laws, Esq.
14. On the Brain-weights of the Chinese and Pelew Islanders. By Dr. Crochley Clapham.
15. On Right-handedness. By — Shaw, Esq.
16. On the Mental Progress of Animals. By — Shaw, Esq.
17. On the Rude Stone Monuments of North Wales. By A. L. Lewis, Esq.
18. On Coincidences in the Celtic and Maori Languages. By the Rev. W. Ross.
19. On the Australian Languages and Customs. By the Rev. A. Mackenzie.
20. On Eskimo Migrations. By Dr. John Rae.
21. On the Earthworks at Portsmouth, Ohio. By Robert B. Holt, Esq.
22. On a Rude Stone Monument in Kent. By A. L. Lewis, Esq.
23. On the Skulls of the Eskimo. By Dr. John Rae.
24. On the Aborigines of Queensland. By Dr. John Beddoe, F.R.S.
25. On the Present State of the Question of the Antiquity of Man. By John Evans, Esq., F.R.S.
26. On the evidence afforded by the Caves of Great Britain as to the Antiquity of Man. By Prof. Boyd Dawkins, F.R.S.
27. On the evidence afforded by the Gravels and Brick Earth. By Prof. T. McK. Hughes, M.A.
28. On the Hyena Bed in the Victoria Cave. By R. H. Tiddeman, Esq., M.A.
29. On Flint Implements from Ballintoy, co. Antrim. By W. J. Knowles, Esq.
30. On the Stewarts Lake and Frazer Lake Indians, and two Legends of the Langley Fort Indians. By Gavin Hamilton, Esq., communicated by Dr. John Rae.

31. On an underground structure in Yorkshire. By J. R. Mortimer, Esq.
 32. On Australia and Oceania. O. H. E. Carmichael, Esq.
 33. On the Spread of the Slaves. Part I. The Croats. By H. H. Howorth, Esq.
 34. On the Castellieri d'Istria. By Capt. R. F. Barton, H.B.M. Consul.
 35. Notes on Socotra. By Capt. F. M. Hunter, F.R.G.S.
 36. Notes on the Záparos. By A. Simson, Esq., F.R.G.S.
 37. On the Characteristics of the Malayo-Polynesians. By the Rev. S. J. Whitmee.
 38. On worked Flints from Egypt. By J. Jukes-Browne, Esq.
 39. On the Galleries of the Cave Pit, Cissbury, and recent Discoveries in its Vicinity. By J. Park Harrison, Esq., M.A.
 40. On reputed poisonous nature of arrows of the South Sea Islanders. By Dr. Messer.

Eighteen Ordinary Members have been elected during the year.

Prof. T. Rupert Jones, F.R.S., has been elected an Honorary Member, Dr. Mayer and Prof. Enrico Giglioli corresponding members.

The Institute has lost through death Viscount Milton, Dr. F. M. Rickard, Mr. Edward Lord, Mr. Walter Bagehot, Mr. James C. Richardson, Mr. W. Somervell, Mr. Robert Dunn, Mr. A. R. Adams, and Mr. Charles Brett; and Mr. Thomas Wright, Hon. Member.

The former and present state of the Institute with regard to the number of Members are shown in the following Table.

	Honorary.	Compounders.	Annual Subscribers.	Total.
January 1st, 1877.	51	95	337	483
Since elected	+ 1	+ 1	+ 17	+ 19
Since deceased	- 1	- 3	- 5	- 9
Since retired			- 15	- 15
Since compounded ..		+ 1	- 1	0
January 1st, 1878	51	94	333	478

The following are the names of donors to the Library and Museum during the past year.

The Royal Society; The Society of Arts and Sciences, Batavia; the Imperial Academy of Sciences, St. Petersburg; the Editor of Nature; the Editor *Revue Scientifique*; the Geologists' Association; J. Jeremiah, Esq., Junr.; the Anthropological Society of Berlin; the Editor *Matériaux pour l'histoire de l'homme*; the Imperial Academy of Sciences of Vienna; the Canadian Institute;

the Royal Historical and Archæological Association of Ireland; James Heywood, Esq., F.R.S.; Commander Cameron, R.N., C.B.; Prof. Virchow; A. L. Lewis, Esq.; the Royal United Service Institution; E. W. Brabrook, Esq.; the Royal Society of Victoria; the Royal Geographical Society; the Society of Antiquaries of London; the Royal Asiatic Society; Prof. F. V. Hayden; Captain Harold Dillon, F.S.A.; the American Association; the Asiatic Society of Bengal; the Anthropological Society of Vienna; A. J. Evans, Esq., F.S.A.; John Evans, Esq., F.R.S.; Dr. J. C. Murray; the Royal Institution of Cornwall; A. R. Grote, Esq.; Hyde Clarke, Esq.; the Asiatic Society of Japan; Baron F. Von Müller; the Imperial Society of Naturalists of Moscow; the Editor *Archiv für Anthropologie*; Prof. G. Nicolucci; M. Ernest Chantre; Dr. James Fergusson; the Social Science Association; the Royal Academy of Sciences, Amsterdam; the Davenport Academy of Natural Sciences; the Smithsonian Institution; Royal Academy of Copenhagen; Dr. J. Kopernicki; the Austrian Government; the American Philosophical Society; Charles Roberts, Esq.; Dr. Paul Topinard; the Royal Society of Tasmania; Dr. Carlo Gracolini; Dr. H. P. Bowditch; the Marx Society; the Executors of the late Henry Christy, Esq.; W. H. Dall, Esq.; Robert Clarke, Esq.; the Cracow Academy of Sciences; Prof. R. O. Cunningham, M.D.; Col. Henry Yule, C.B.; Prof. Enrico Giglioli; Dr. Paul Broca; Prof. A. Ecker; Capt. R. F. Burton, F.R.G.S.; C. Roberts, Esq.; G. C. Steels, Esq.; the State Board of Health, Massachusetts; the American Medical Association; the Berwickshire Naturalists' Field Club; Frederick Young, Esq.; the Royal Colonial Institute; the New Zealand Institute; Mrs. Morgan; F. A. Allen, Esq.; James McClelland, Esq.; the British Association; the Devonshire Association; W. M. F. Petrie, Esq.; Prof. T. Rupert Jones, F.R.S.; Otis T. Mason, Esq.; C. W. Brooks, Esq.; the Royal Geological Society of Ireland; the Record Department, India Office; the Government of India, Home Department; O. D. Wright, Esq.; the Rev. Canon Greenwell, F.R.S.; Prof. G. Rolleston, F.R.S.

Mr. PEACOCK moved, and Mr. J. BONWICK seconded the adoption of the Report. Carried.

The PRESIDENT then delivered his Annual Address.

In accordance with the custom of this Institute, I rise to deliver an anniversary address, which, following the example of several of those who have in former years occupied the Presidential chair, I propose to make rather retrospective than prospective in its character.

With regard to the communications which during the past year have been addressed to the Institute, I think that we may congratulate ourselves that they have not fallen below those of previous years either in number or importance. I may, however, observe that our attention during that period has not been called to many papers which, in the classification of General Lane Fox, would rank under the heading of Comparative Anatomy, Biology and Sociology. Adopting his order of arrangement, I come first to—

DESCRIPTIVE ETHNOLOGY.—Under this head may be classified eight papers:—

1. "Australian Languages and Traditions," by the Rev. C. C. Greenway, Mr. Thomas Honey, Mr. MacDonald, Mr. John Rowley, and others, communicated, through the Colonial Secretary of New South Wales, by Mr. Ridley.

These reports are in continuation of others which have already appeared in our Journal, and contain many details as to the Kamilaroi and Wailwun language and traditions, and those of other parts of Western Australia from Melbourne in the south to Cape York in the north.

The custom of the Bora, or initiation into manhood, is described from personal observation by Mr. Honery, of which also Mr. Macdonald gives some details. One curious feature mentioned by the latter is the construction of a low mound representing a man in the attitude in which the young men are made to lie while awaiting the ordeal of the Bora, 22 feet long, and 12 feet wide from hand to hand. The form of totemism and the limitations on marriage which prevail among the Kamilaroi and other tribes are well known, but I am not sure whether the method of catching turtles by means of a remora or sucking fish with a cord attached, which is in use among the natives at Cape York, has been previously noticed. The traditions with regard to the origin of some of the constellations appear also to be remarkable.

2. "Customs of the Stuart's Lake Indian women, and those of the Fraser Lake tribes and Langley Fort legends," from information supplied by Mr. Gavin Hamilton, communicated by Doctor John Rae. In these papers are given some instances of the seclusion of women at certain periods and of their prohibition from some kinds of food, such as have been observed in other parts of the world. The legends relate to the origin of rivers, lakes, and islands, and of the fur-producing animals.

3. "A Benedictine Missionary's Account of the natives of Australia and Oceania from the Italian of Don Rudesindo

Salvado." This paper, compiled by Mr. Carmichael from the interesting work of Bishop Salvado, must rank under the head of "Descriptive Ethnology." The work was published in 1851, and gives the experience of the Missionaries from Jan. 1846. It is of course impossible within the time at my command to give an abstract of the paper, but among the most curious features may be noticed the religious views of the Australians of New Nursia, such as their ideas of a soul which on the death of the body remains like a bird among the trees, their belief in an Omnipotent Creator, now however dead, and in an author of evil who is always at work, and their neglect to worship the one, or to propitiate the other. Their belief in a great serpent Uocol which lives at the bottom of a deep pool, and will kill any natives that drink from it, may be compared with the serpent-beliefs of other races. Not a little remarkable is the quickness attributed to the youthful Australians in learning letters and languages. Bishop Salvado's observations as to the colour and hair of the Western aborigines of Australia seem rather to militate against the conclusions which he drew from the similarity of language in different parts of the country as to there being but one race; for he states that in Western Australia he never met with more than one native who was black, and that the hair was not woolly, but often smooth and fair, thus bearing out the views of those who believe that representatives of at least two races of men are to be found in Australia.

4. "Notes on Socotra," by Captain F. M. Hunter, R.N. In this paper the author described his observations made in travelling through this little-frequented island, which are to some extent in disaccord with those of a previous explorer, Lieut. Wellstead.

5. "Notes on the Záparos," by Mr. A. Simson. The customs of this tribe of Equador have been carefully studied by the author. The people are highly superstitious, but possessed of extraordinary powers of observation, so far as tracking the enemy or game is concerned. They abstain from certain meats, such as that of tapir and peccary. Their system of courtship,

in which the suitor deposits food near the dwelling of the object of his affections, and learns his acceptance by her taking it up and cooking it, and his rejection by its being left untouched, commends itself for simplicity.

6. "Characteristics of the Malayo-Polynesians," by the Rev. S. J. Whitmee. Some curious observations are here made as to the superior position of the women of the Samoan group as compared with that of the women of the black Polynesians. Rank and title are in some cases hereditary among the former, and the author inclines to the opinion that this denotes a descent from a former higher state of culture. His remarks as to the difficulty of obtaining correct versions of native myths and poems are well deserving of attention.

7. "On the Andamanese and Nicobarese," by General A. Lane Fox and Mr. E. Man. This paper was in illustration of a remarkable collection of objects manufactured and used by these people. I am sorry not to be able on the present occasion to do more than mention its title.

8. "Ethnology of the Motu, New Guinea," by the Rev. W. Y. Turner, M.D. The great interest of this paper consists in the sketch it gives of the condition to which a people still in the Stone Age may attain. Although devoid of metal, various industries are pursued and even localized, pottery, for instance, being made at one village or settlement, armlets at another, and canoes at another. Barter is carried on to a great extent, clothing and even food being imported. Polygamy is not practised, and there is property in plantations. Though clothing is of the scantiest, ornaments are freely used, and an armlet of shell also serves as a pocket. Though there is some belief in a future state, nothing appears to be buried with the dead for use in a future state of existence; and though the widow is for a time compelled to live in a hut close to or over her deceased husband, in a few years no trace of the grave remains. In some respects their customs are almost European. Black is the colour of mourning. Like the Jews of Poland and other countries the married women shave off their hair, and a

neighbouring tribe, the women of which wear a girdle or fringe somewhat open at the sides, are reproached, like the Spartan women of old, as *φαινομήριδες*, or thigh-shewers. The Motu are regarded by Dr. Turner as Malay rather than Papuans, but there appear to be other races, such as the Koiari and Koiatapu, in the same district. The custom prevailing in New Guinea of building pile-dwellings, much like those of the Swiss lake settlements, has already been frequently noticed.

ARCHÆOLOGY.—*Seventeen Papers.*

1. "On the Classification of Arrowheads," by Mr. W. J. Knowles. In this paper, the author suggests the adoption of the terms, "Stemmed, Indented, Triangular, Ovate, Lanceolate, Kite-shaped, and Lozenge-shaped," as better adapted to express the various forms of stone arrowheads, than the terms suggested by Sir William Wilde, Sir John Lubbock, General A. Lane Fox, or myself; or he would admit the term leaf-shaped as comprising the ovate and the lanceolate varieties. Without myself accepting all Mr. Knowles's conclusions as universally applicable, I think that the term "indented," is one which will be found of service, especially in describing a prevailing type of Irish arrowheads.

2. "Additional remarks on the Find of Prehistoric Objects at Portstewart," by Mr. J. W. Knowles. This paper is supplementary to one which was read at the meeting of the British Association at Belfast, giving an account of a large number of stone implements and bones, in the sand-hills, near the shore at Londonderry. Among the objects found is one of the so-called oval tool-stones, which the author regards as being of the same age as the flint implements found at Portstewart and in the country adjoining, and as having been used in their manufacture. He can hardly have been aware that the same class of tool-stones is found in Scandinavia, often associated with iron weapons and tools, as for instance in the Thorsbjerg Moss Find.

3. "On Non-Sepulchral Rude Stone Monuments," by Mr. M. J. Walhouse. In this paper the author, from his own experience in India, brings numerous facts together which are well calculated to throw light on the possible origin and meaning of monuments in other countries, and of far earlier date. The piling up of cairns, commemorative of mortal accidents, and to which each passing traveller contributes a stone; the formation of alignments and enclosures marked by large blocks of stone; the erection of standing stones, and even of trilithons; and the construction of dolmens or cromlechs are all in practice at the present day. Many of these latter megalithic structures are open on one side and are in use as a kind of rock-temple, in which, curiously enough, polished stone celts are often among the sacred objects deposited. Although these open-sided structures are free-standing and non-sepulchral, some of them are sculptured inside with figures commemorative of widow immolation, and it is the custom of certain tribes to deposit a long waterworn pebble in the dolmen on the occasion of a death. Such a custom may be significant of the modern form of temple being in some sense a derivative from an earlier form of sepulchral monument. The latter part of this paper is devoted to notices of stone-worship, a practice which appears to have prevailed from the earliest times unto the present day. It seems to me not improbable, that in some instances, the stones thus venerated may have been of meteoric origin. The universal prevalence of this custom, which has been largely insisted upon by Sir John Lubbock and Mr. E. B. Tylor, is very remarkable. To use the words of the latter,* "We may still say with Tacitus, describing the conical pillar which stood instead of an image to represent the Paphian Venus, 'et ratio in obscuro.'" Curiously enough, there now exists, near the site of Catalima in Cyprus,† a pointed stone, still 6 feet 7 inches above the ground, and with a small hole, about 9 inches by 5 inches through the centre, in which the young girls of the village deposit their glass jewellery,

* Prim. Cult., vol. ii, p. 152.

† Di Cesnola, "Cyprus," p. 188.

when they break it either when they are married or betrayed by their lovers; while the older women resort to the monolith and offer votive tapers, in the hope of being cured of bodily ailments.

4. "On a Kitchen-Midden at Ventnor," by Mr. Hodder M. Westropp. Strictly speaking, this paper contained a notice of two kitchen-middens, if not more, one of which, like that in the Island of Herm, explored by the late Mr. J. W. Flower, is of Roman or post-Roman date. The most remarkable object found is a small urn, which is described as ornamented with a band of coralline seaweed around it. I have not seen it, but from a fragment of another vessel shown me by Mr. Westropp, I am doubtful whether the presumed coralline does not consist merely of the branching lines of adhesion of the wetted surface of the clay to the hand or some smooth tissue.

5. "On a Kitchen-Midden found in a Cave, near Tenby, Pembrokeshire, and explored by Mr. Wilmot Power," by Mr. Edward Laws. In this cave of Little Hoyle or Longbury Bank, were found confusedly mixed together, bones of ox, goat, sheep (?), horse, dog, swine, and roebuck, and shells of oyster, limpet, mussel, cockle, whelk, and periwinkle; together with a bone needle and some other stone and bone implements and pottery. In this "hotch-potch," as the author terms it, were portions of the remains of at least six human beings, one of whom, at all events, was dolichocephalic. The author suggests that we have here an instance of cannibalism, and that the cave may possibly have been occupied by Iberian allophylians. The cave, however, is without stalagmite, and appears to have been occupied in historic times, as Roman pottery, as well as coarser ware turned on wheel were found in it. I must confess, that it appears to me a case in which great caution must be exercised in drawing conclusions.

6. "On some Rude Stone Monuments of North Wales," by Mr. A. L. Lewis. This paper contains descriptions of the dolmen in the park of Plas Newydd, a small dolmen on the top of the Great Orme's Head, a chambered monument at Tyn-y-coed

Farm, near Bettws-y-coed, a standing stone near Aber, and a circle called Y-Meinen-Hirion. The principal point insisted on by the author is the presence, in connection with this circle, of a large outlying stone towards the north-east, which he regards as pointing out the direction in which the sun first appears above the horizon at midsummer. In this he finds further support of the views he has advocated on former occasions, the presence of such outlying stones having been observed not only at Stonehenge and the Roll-rich, but in connection with other circles of this character.

7. "The Earthworks of Portsmouth, Ohio," by Mr. R. B. Holt. These are stated to consist of extensive terraces, enormous mounds and ditches, long lines of parallel embankments, and models of animals on a gigantic scale. With regard to the terraces, however, which rise in one instance 19 feet, and in another 37 feet, above those below them, it is a great question with me whether they are in any way of human origin. They appear to me to be rather river terraces such as are well known to geologists, and to mark the level of former floods of the Ohio and Scioto Rivers. The earthworks are remarkable and on a large scale; a large "temple," consisting of three concentric circles, the outer one of which is 640 feet in diameter. In the centre is a mound, rising 45 feet above the surrounding surface. The skulls from small mounds in the neighbourhood are always brachycephalic, while others, from places where the interments appear to have been made with less ceremony, are dolichocephalic. It is suggested that they testify to the presence of two races, the one dominant and the other servile. However this may be, the remains of ironworks seem to require further investigation, and curious matter for speculation is afforded by the large sheets of mica deposited in piles as if for use, which have been brought to light by excavations.

8. "On a Rude Stone Monument in Kent," by Mr. A. L. Lewis. This is situated about a mile and a half from Snodland Station, at a place called Coldrum Lodge. There appears to be there the remains of a sepulchral chamber, formed of two stones,

9 or 10 feet long, and 5 to 7 feet high, as well as a portion of what may have been an oval of stones of smaller size.

Of the three next papers belonging to this class I shall speak presently, as they in fact formed the basis of our discussion on the antiquity of man. They were as follows:—

9. "On the Evidence afforded by the Caves of Great Britain as to the Antiquity of Man," by Professor W. Boyd Dawkins.

10. "On the evidence afforded by the Gravels and Brick-earths," by Professor T. McKenny Hughes.

11. "On the Age of the Hyæna Bed at the Victoria Cave, Settle, and its bearing on the Antiquity of Man," by Mr. R. H. Tiddeman.

12. "Flint Implements and Associated Remains found near Ballintoy, co. Antrim," by Mr. W. J. Knowles. Like those from Port Stewart, these objects were found near the sea-shore, but in this case there appears to have some traces of habitations, and possibly old floors. Scrapers were numerous, and a kind of chopper is also mentioned. In the wall of one of these dwelling-places a so-called tool-stone was found, which the author regards as belonging to the Stone Age. As I have already observed, there can be no doubt of the analogous form in Denmark belonging to the Early Iron Age. I can see no reason for assigning an earlier date to the Irish specimens, but if in this instance the tool-stone and the scrapers could be proved to be contemporaneous, I should more readily accept the scrapers as belonging to the age of iron than I should the tool-stone as belonging to that of stone. As I have elsewhere observed, I have myself bought flints trimmed to the scraper form, but in use at the present day for striking a light. I have indeed figured an example.*

13. "On an Underground Structure at Driffield, Yorkshire," by Mr. J. R. Mortimer. This paper relates to a flue-like cavity, walled and covered over with slabs of chalk, and bearing strong evidence of having been exposed to the action of fire. A similar

* Ancient Stone Implements, fig. 222.

structure is mentioned as having been found near Beverley. Their contents prove them to be of Roman date, but their use is uncertain. The author regards them as of the nature of hypocausts.

14. "Flint Implements from Egypt," by Mr. A. Jukes Browne. The objects described are for the most part flakes, trimmed or worn at the sides or ends, and some arrow-heads of a long pointed form and not chisel-ended like the ordinary Egyptian type of arrow-head. Different forms of instruments seem to prevail at different places in the neighbourhood of Helwan, which the author regards as indicative of separate manufactures having existed for producing different classes of instruments. It is, however, a question whether the implements themselves are not merely such as have been worn out or lost, and if so, their differences in character would be merely significant of flint having been used in the working of different materials or shapes, at the different places where these objects are found.

15. "On the Galleries in the Cave Pit, Cissbury, and recent discoveries in its vicinity," by Mr. J. Park Harrison. With regard to the pits themselves, the author thinks that though excavated for the purpose of obtaining flint, some remained in subsequent use as refuges or storehouses. In the neighbourhood of the deep shafts which have been so often described, he found several shallow pits containing animal bones, pottery, a weaving comb, an iron pruning hook, and other objects, probably of late Roman or post-Roman date. These pits Mr. Park Harrison regards as sepulchral, but on this subject there is a great diversity of opinion.

16. "On the discovery of Palæolithic Implements in the Valley of the Axe." In this short paper I place on record the discovery of a number of instruments of chert, in a gravel-pit near Chard, which have for the most part been obtained through the efforts of Mr. D'Urban, of the Albert Memorial Museum, Exeter, though some isolated specimens have been found farther to the west. This is the first instance of Palæolithic implements having been found in numbers west of Bournemouth.

17. "*More Castellieri*," by Captain Richard Burton. In this somewhat digressive paper a lively topographical account is given of the Istrian Peninsula, with notices of its various antiquities, and especially the Castellieri, of some of which the same author has given details in a previous communication.

The papers to be classed under the head of

ETHNOLOGY

have not been numerous. They consist of the following five papers:—

1. "*Eskimo Migrations*," by Dr. John Rae. In controverting the opinion that the Arctic Highlanders of the north-west of Greenland reached that place without touching the American continent, the author points out that the Eskimos are a people always ready to adapt themselves to circumstances, and that whether their huts were built of stone, wood, or snow, whether they burn wood or oil for heating purposes; whether they use harpoons and lances, or bows and arrows, and whether they use large luggage boats or sealskin sledges—are questions not of race but of geographical surroundings.

2. "*On the Aborigines of Central Queensland*," by Dr. Beddoe. This paper mainly consists of materials gathered on the spot by Mr. Robert Christison, whose experience is calculated to give a far better character to these aborigines than that which is usually assigned to them. Many are of good stature and possessed of good muscular development, even of the legs. Their spears, tomahawks, waddies, and other weapons, are much like those used in other parts of Australia, and they are very skilful in the use of the boomerang.

3. "*On the Ethnology of Germany. The Migrations of the Saxons*."

4. "*On the SPREAD of the SLAVS*." Part I, the CROATS.

In the first series of these valuable papers, of which it is beyond my power to give an abstract, Mr. Howorth continues his detailed account of the early history of the Saxons—a subject.

in which we as Englishmen are especially interested. While in the second he enters into a similar investigation with regard to the Croats, towards whom, as well as towards other Slav races, recent events have done much to direct attention.

COMPARATIVE ANATOMY.—*Three papers.*

1. "On the Brain-weights of some Chinese and Pelew Islanders," by Dr. Crochley Clapham. After pointing out the truth of Wagner's conclusion that superiority of size of brain cannot be regarded as a constant accompaniment of superiority of intellect, the author cites his own experience of the brain-weight in 716 cases of insanity in which he found the average weight for males to be 48·149 oz. avoirdupois, and for females, 43·872, or higher than those deduced by Dr. Robert Boyd from an examination of 2,086 sane brains. In the case of 16 brains belonging to the "Coolie," or lowest grade of Chinese society, the weights were, male 50·45 oz. and female 45·45 oz., while of 4 male Pelew Islanders, fishermen, the weight was 49·375 oz. This remarkable excess in weight seems to be balanced by a marked deficiency in the number and depth of the secondary convolutions of the brain, and a want of depth in the grey matter. There is also an almost simian symmetry of the two hemispheres. The skulls of the Pelew Islanders were remarkably dolichocephalic. The author was inclined to connect the large size of the brain with its being essentially musculo-motor in function.

2. "On Right-handedness," by Mr. Shaw. This paper contains rather a collection of some few facts in connection with right- and left-handedness than any attempt to explain the phenomena. Left-handedness appears to follow such arbitrary rules, even in the same family, that it appears to me possible, I will not say probable, that like some deformations of the skull it may be connected with the manner in which the child has been principally carried during infancy, and that this again may be connected with the use by the mother of one breast in preference to the other.

As has already been pointed out by others, the more direct supply of blood to the one side than to the other may also have much to do with the question.

3. "On Eskimo Skulls," by Dr. John Rae. Dr. Rae calls attention to the marked difference between the skulls of the Eskimos near Behring's Strait and of those inhabiting Greenland, the former being brachycephalic and the latter dolichocephalic, while the natives of the intermediate coast from the Coppermine River eastward have mesocephalic skulls. He suggests as a cause for this difference the probable intermixture of the Eskimo race with the North American Indians on the one hand and Danish settlers on the other, and expresses an opinion that the pure Eskimo type is to be found between the Coppermine River and the shores of Hudson's Bay.

BIOLOGY.—*Two Papers.*

1. "On the Mental Progress of Animals during the Human Period," by Mr. Shaw. This paper, though short, is extremely suggestive and opens out a line of thought which may profitably be pursued by all who are interested in tracing the interdependence of the different forms of life at any period. In connection with this subject, I venture to call the attention of English observers to the work of Mr. J. C. Houzeau,* "*Études sur les Facultés Mentales des animaux comparées à celles de l'Homme, par un Voyageur naturaliste*," which, though not tracing the influence that the appearance of man has had on the lower animals, will be found to contain much valuable information on the mental powers of animals and the early condition of the human race.

2. "An inquiry into the reputed Poisonous Nature of the Arrows of the South Sea Islanders," by Dr. Messer, R.N. The author is led to doubt the potency of the poisons used on these arrows, and seems inclined to attribute their fatal effect in producing a disease identical with traumatic tetanus more to morbid mental

* Mores, 1872, 2 vols, 8vo.

disturbance than to active poison. Analysis by Professor Busk failed to detect any tetanizing ingredient on an arrow from Malluolo, but it has been suggested that what after some months is harmless, may originally have been deadly. If the virus is derived from long contact with a putrid human body, it may well at first be deadly, but in that case it is remarkable that the symptoms should differ so materially from those of blood-poisoning.

PHILOLOGY.—*Four Papers.*

1. "Himalayan Origin and Connection of the Magyar and Ugrian," by Mr. Hyde Clarke. In this paper the author attempts to establish the relation of the languages of the Ugrian order with those of the Himalayan group, especially those of East Nepaul, and would extend the influence of a Himalayan centre into Africa. He points out that among the tribes of Nepaul are to be counted the Magar, and gives examples of affinities between common words in Magar and Magyar. According to Mr. Solymos, who took part in the discussion of the paper, the Hungarian Magyar tradition is that their ancestors came across the Ural from Asia.

2. "The Scottish Highland Language and People," by the Rev. Hector Maclean. Mr. Maclean disputes the propriety of dividing the ancient Continental Kelts into two branches, the one Gadhelic and the other Kimric. He thinks that if some of the Keltic dialects of the east and south-east of Scotland could be recovered, the two branches of Kimric and Gaelic Kelts would be found to be but the extremes of one great continuous people. The Caledonii of Tacitus he considers to be a different people from those of subsequent writers, and regards the Scottish Highlanders of the present day as a commixture of several races.

3. "Curious Coincidences in the Celtic and Maori Vocabulary," by the Rev. W. Ross. This short paper adduces a number of coincidences between two languages geographically so wide apart, not as any proof of affinity between them, but rather as suggestive that many languages and families still carry with

them some of the characteristics of a prehistoric and primeval speech, the common patrimony of the human race.

4. "On the Anglicizing and Gallicizing of Surnames," by the Rev. Hector Maclean.

SOCIOLOGY.—*One Paper.*

"Primitive Agriculture," by Miss A. W. Buckland. This paper contains many useful facts and interesting speculations, both as to the origin of the various cereals and other plants cultivated for food, and the means and instruments used for their cultivation. Perhaps the most important part is that which is devoted to the history of the cultivation of maize. The author observes, that if archæologists will look with unprejudiced eyes, they will yet find representations of this plant among the sculptures of Egypt and Greece. Curiously enough Leake in his "Numismata Hellenica," doubtfully describes a coin of Pæstum as bearing upon it a branch of maize; but on the other hand, Hieronymus Bock, writing in 1539, mentions the great Welsch-korn, foreign corn or maize, among the newly imported grain which rendered Germany an *Arabia felix*. Moreover, the symbol on the coin of Pæstum is certainly not maize. I may just mention, for the sake of those who are not already acquainted with the book, that a mass of valuable information with regard to the origin of cultivated plants and trees and of domesticated animals will be found in Victor Hehn's work, "Kulturpflanzen und Hausthiere."*

Such is a necessarily short and imperfect account of most of the forty papers which, during the last year, have been communicated to us. As has not unfrequently been the case before, the Archæological papers have been the most numerous; but I hope this will not be attributed to any presumed archæological proclivities on the part of your President. I must again repeat, that though this Institute is ready to receive any communications bearing on the history and progress of the human race, yet that

* "Hehn, Kulturpflanzen, &c.," p. 438, 8vo, Berlin, 1874.

papers bearing more directly on his moral and physical condition are better adapted for discussion at its meetings than Archæological essays, such as might with propriety be addressed to some of our Archæological Societies.

Our meetings have been fairly well attended, but perhaps the most important was that already mentioned, which was devoted to the discussion of the present condition of the question as to the Antiquity of Man, and at which the three papers already enumerated were read by Professor Boyd Dawkins, Professor Hughes, and Mr. Tiddeman. It was of course impossible within the limits of a single evening to do full justice to the subject, but the manner in which it was approached by treating of the evidence afforded by the caves, and the gravels and brick-earths of this country was perhaps the best that could have been adopted, and so far as Britain is concerned, enabled those who took part in the discussion to bring their views forward in a comprehensive manner. The question as to the time involved in the changes in the fauna and the configuration of the surface since the Palæolithic period, may be discussed with quite as great advantage from a purely English point of view, as from one embracing a larger area; and to some extent this will hold good with regard to the question which has been raised whether the palæolithic implements of the river-gravels may not be referred to an inter-glacial period. On this point the evidence, to my mind, is conclusive that many of the beds containing the implements are posterior in date to the middle glacial sands and gravels, and the chalky boulder clay of the east of England as defined by Mr. Searles Wood, Jun.; though I am ready to admit that it is still an open question whether some of the glacial deposits of the north of England and of Scotland may not possibly belong to a more recent period or even synchronize with the palæolithic implement-bearing beds of the south and east of England. As to the relics of human workmanship, thought to have been discovered in beds of Pliocene and even Miocene Age in Italy, Switzerland, and France, I must again

on the present occasion repeat the words of caution which I ventured to address to you in May last. In Italy, I think that there are not a few naturalists who agree with me in regarding the incisions on the fossil bones of whale from the neighbourhood of Sienna, as being the work of some other than human agency, and with regard to the Wetzikon staves, I have heard an opinion expressed by a competent observer who had the opportunity of examining them, that they might after all turn out to be the knots or bases of branches from a stem of fir, the rest of which had more readily decayed than these parts which are so highly charged with turpentine. But while strongly insisting on the necessity of caution in accepting evidence, I cannot do otherwise than again express my belief that we shall eventually find traces of man of earlier date than that which can be assigned either to the caves or river gravels of Western Europe. It is I think rather in the sunny lands of the east and south, than in the more temperate west or colder north, that these traces will be discovered, and I hope that Indian geologists will ere long solve in a satisfactory manner the date and origin of the so-called laterite deposits of Madras. Farther east in Borneo there appears a chance of some cave explorations being carried on which may possibly throw some light on the date of man's appearance in that part of the globe. Mr. Everett, whose name as a naturalist is well known, and who has already carried on some cave explorations in Borneo, has expressed his willingness to devote a year to further researches, provided the necessary funds are forthcoming, and I am now in correspondence with him, giving him the guarantee that his expenses will be met. The Royal Society has already voted a sum in aid of the research, and I must venture to appeal to all those who are interested either in the early history of man, or in palæontology, to assist me in raising the by no means inconsiderable amount for which I have made myself responsible. I will only add under this head that any proceeds from the cave explorations will be placed at the disposal of the British Museum, and the duplicates not required for that institution, at the disposal of a committee.

I have already said enough and more than enough as to the proceedings of our Institute during the last year. I must now add a few words with regard to some of the books having a more or less direct bearing upon our science, which have appeared in this country within the same period.

First among these, I must place Canon Greenwell's long-expected work on British Barrows. In it he gives an account of no less than 234 tumuli of different kinds, which have been opened under his immediate superintendence, in different parts of England, for the most part in Yorkshire.

Of each of these, full details are given, while the introduction consists of a valuable essay on the nature and characteristics of the different forms of sepulchral mounds, the various methods of interment, and the implements, arms, ornaments, and pottery found in the graves. It would be out of place here to enter into details, but I hope that many of my hearers are already in possession of the book, the value of which is enhanced to anthropologists by the careful description of the figures of thirteen of the skulls, from the pen of Professor Rolleston, who has appended instructive essays on the series of prehistoric crania, and on the flora and fauna of neolithic times.

The splendidly illustrated work of Dr. Schliemann, giving the results of his excavations at Mycenæ and Tiryns, must also not be passed over in silence. The light thrown by these explorations on the early civilization of Greece and its funeral customs can hardly as yet be fully appreciated, but taken in conjunction with the "Trojan discoveries" of the same enthusiastic explorer, and with those of Di Cesnola in Cyprus, they open up a new chapter in the history of the progress of the human race. The actual anthropological details given by Dr. Schliemann are scanty, but the bones from the tombs of Mycenæ are preserved in the National Museum at Athens, and will no doubt be the subject of future examination. I must express a hope that some more "faithful likeness" of the "tolerably well-preserved" head from the first sepulchre will be given than that in Fig. 454, in which the "thirty-two beautiful teeth," described in the text,

are shown as of uniform size, and all crowded into about three-quarters of the jaws.

Some of the skulls exhumed by General di Cesnola are deposited in the Anthropological Museum at Turin. His book vies with that of Schliemann in the number and beauty of its illustrations, though, for the most part, his discoveries may be referred to a somewhat later period. Regarded from a philological point of view, the discovery of numerous Cypriote inscriptions, and the key, which, thanks to the late Mr. George Smith, Dr. Samuel Birch, and the late Dr. Brandis, we now possess to the remarkable syllabic Cypriote alphabet, seem likely to bear important fruits.

FOLK-LORE SOCIETY.

Another event which will be of some interest to this Institute is the formation of a Folk-Lore Society, intended to preserve some record of our popular fictions and traditions, our superstitions, and ancient customs. The intention of its founders is that it should also extend the field of its labours to the folk-lore of the Continent of Europe and of Aboriginal races. While deprecating the foundation of too large a number of societies, I hope that it will prove that this new institution will find a field for its labours, which has to a great extent been hitherto unappropriated, and that its researches, so far from interfering with those of this Institute, may afford assistance to such of its members as are more particularly interested in this phase of our pursuit.

ANTHROPOLOGICAL EXHIBITION.

There is only one subject more which I need mention, and that has to do with the future, rather than with the past, I mean the approaching exhibition in connection with anthropological science, at Paris. With such names as De Quatrefages, Broca, De Mortillet, Topinard, and Hovelacque, upon its organising committee, we cannot doubt of its success; and I hope that

anthropologists in this country will co-operate to the best of their ability with our friends on the other side of the Channel, and bear in mind that of all the nations of Europe, there is none which has entered more heartily into anthropological studies, or done more to advance their progress, than France.

I have only now to express a hope that, during the year on which we are now entering, our Institute may continue to prosper, the number of its members to grow, and the interest felt by the educated public in all anthropological and ethnological subjects to increase; and to offer my thanks to the Officers and Council of the Institute for their cordial co-operation with me during the past year, and to the members generally, for the consideration they have shown me since I have had the honour of occupying your presidential chair.

Mons. RECLUS moved, and Mr. HYDE CLARKE seconded a vote of thanks to the President; and that the Address be printed in the *Journal of the Institute*.

Carried by acclamation.

OBITUARY NOTICE OF THOMAS WRIGHT, M.A., HONORARY MEMBER.

The distinguished antiquary, Mr. Thomas Wright, was born at Ludlow in 1810, and received the rudiments of his education in the Grammar School there. Thence he proceeded to Trinity College, Cambridge, where he graduated; and where thus early in life he distinguished himself by researches in the precious MSS. of the libraries. One of his college friends was the late eminent Saxon scholar, John Mitchell Kemble, who in the preface to his translation of the Saxon epic poem, *Beowulf*, pays a high compliment to Thomas Wright. With J. O. Halliwell (now Phillippes), the great Shakespearean scholar, he also became intimate, and their friendship was lasting. In some early publications, such as the "*Reliquiæ Antiquæ*," in two vols., they were associated.

On quitting Cambridge he at once made choice of his way of life. He dedicated himself to literature, and, coming direct to the metropolis, entered on the arduous career of authorship. On the whole, his early career was successful. He supported himself by his pen, and won a reputation which gained for him many and valuable friendships. Guizot appreciated his worth, and

secured for him at an early age the distinction of being one of the Corresponding Members of the French Institute.

In 1843 he joined Mr. Roach Smith in founding the British Archæological Association, and this was the beginning of many active steps taken in the interests of archæology which should be remembered with gratitude.

The names of Mr. Wright's principal works will be familiar to all our Members. For the Percy, the Caxton, and Early English Text Societies, and of the Roxburgh and Warton Clubs, he did fine editorial work, while, by more popular books, he gave impetus to the study of the treasures of the past. To the general public he is best known by "*The Celt, the Roman, and the Saxon*," which passed through three editions; "*England under the House of Hanover*," 1848; "*Popular Superstitions of England*," 1845; "*Domestic Manners and Sentiments in England during the Middle Ages*," "*Womankind in Western Europe*," "*The Life of Gillray*," and beyond all in respect of popularity, his "*History of Caricature and the Grotesque in Literature and Art*." It may be interesting to add that it was at the special request of Napoleon III. that he translated the Imperial "*Life of Julius Cæsar*" into English.

In 1853 Mr. Wright became a member of the Ethnological Society of London, and in 1857 was elected secretary, in succession to Mr. Richard Cull.

In 1858, and again in 1862, 1864, 1865, 1866 and 1868, he served as one of the Secretaries of the Section of Geography and Ethnology in the British Association.

In 1860 it was resolved by the Council of the Ethnological Society that Mr. Wright's labour on their behalf had become so onerous as to demand assistance, and Dr. Hunt was accordingly appointed as his colleague.

At the Cambridge meeting of the British Association in 1862, and afterwards before the Ethnological Society, he read an account of the human remains found in the excavations at Wroxeter, which were, as he pointed out, of three classes: 1st, the regular cemetery of Roman Uriconium, outside its walls; 2nd, remains found within the city, probably of persons massacred when it was taken and destroyed; 3rd, other skeletons interred within the walls, which presented a peculiar obliquity of shape, which he attributed to artificial deformation. By 1863, Dr. Hunt had formed the resolution of establishing the Anthropological Society of London, and had accordingly retired from his association with Mr. Wright in the Ethnological Society, his place being supplied by Mr. Francis Galton. Dr. Hunt showed his respect for his late colleague, however, by immediately proposing Mr. Wright's election as one of the

twenty-five Honorary Members of the Anthropological Society, and as it is the good fortune of this Institute to inherit every graceful act of both of the Societies of which it is composed, Mr. Wright became by that fact an Honorary Member of the Anthropological Institute on its formation.

In 1865 Mr. Galton retired from the Secretaryship of the Ethnological Society, and was succeeded by Mr. D. W. Nash, Mr. Wright continuing in office.

On 21st November, 1865, he read before the Society an important paper on the true assignation of the bronze weapons, &c., supposed to indicate a bronze age in Western and Northern Europe, in which he attacked the received opinions with earnestness and great learning, seeking to show that leaf-shaped bronze weapons bear a resemblance amounting to identity with the swords figured on Roman coins and monuments. That he never saw cause to withdraw these opinions appears from his repetition of them in his latest work, entitled "*Uriconium*," though a paper in reply was read on 13th March, 1866, by Sir John Lubbock and Mr. F. Lubbock.

On 24th April, 1866, Mr. Wright read a paper on the intercourse of the Romans with Ireland, in answer to an article which had appeared in the *Anthropological Review*, iv. 180 (not 266, as wrongly indexed). Mr. Wright maintained the existence, during the whole period of the Roman power in Britain, of Roman settlements in the north-east of Ireland.

On 26th June, 1866, Mr. Wright exhibited to the Society a drawing of a bronze dagger, said to have been found at Wroxeter.

In 1869 Mr. Wright and Mr. Nash both retired from the office of secretary, and Mr. Wright was elected Vice-President, an office which he continued to hold till the Ethnological Society was merged in this Institute.

It will thus be seen that Ethnological Science owes him, besides the important papers to which reference has been made, twelve years' services as Secretary of that Society, as well as editorial work throughout the whole of its Second Series of Transactions, forming seven volumes.

It may be added that Mr. Wright was for many years an Honorary Member of a Society with which this Institute has always enjoyed a close alliance—the Royal Society of Literature.

In 1837 he was elected a Fellow of the Society of Antiquaries of London, and retired from the Society in 1876, having in the meanwhile made some valuable contributions to *Archæologia*.

His long and useful life closed on Sunday, December 23rd, 1877, and his funeral took place at Brompton Cemetery on the 29th of the same month.

The titles of his books fill many pages of Allibone, and of his

contributions to current literature no record has been kept. He was simply indefatigable in production, and it has been truly remarked that "no Englishman of our times has so intelligently treated so many different departments of literary research."

Most of the accounts of his life which have appeared omit mention, for example, of his "Christianity in Arabia," and of "Two volumes of Vocabularies illustrating the general Archæology and History of our Country, and the forms of elementary education and of the languages spoken in our country from the 10th to the 18th century; and Feudal Manuals of English History," compiled at the request and at the exclusive cost of Mr. Joseph Mayer.

His services to literature, in branches which are certainly not those that lead to fortune, were not ungracefully acknowledged in his later years by an annual grant from Her Majesty's Civil list.

Mr. William Sawyer happily describes him as "one of the most indefatigable of authors and kindest of men. In antiquarian circles the name of Thomas Wright is known and respected all over the world; the work he did is valued; the impulses he gave are felt."

Dr. Charles Pickering died in Boston, March 18th. He was born in Susquehanna, co. Pennsylvania, November 10th, 1805. He was a graduate of Harvard, in the class of 1823, and of the Medical College of 1826. He was a member of the American Academy of Arts and Sciences, and of the American Philosophical Society, was the Naturalist of the U.S. exploring expedition under Commodore Wilkes in 1838—1842, practised medicine in Philadelphia for several years, and afterwards removed to Boston. Besides the report of his exploring expedition, he was the author of several valuable scientific publications.

The exploring expedition returned, leaving certain countries that required to be visited to complete the survey of the globe. Accordingly, after remaining a little over a year at Washington, Dr. Pickering set out alone in 1843 for Malta, Egypt, down the Red Sea to Zanzibar, and thence to Bombay, returning after an absence of twenty-two months. He then prepared and published his work on "The Races of Man and their Geographical Distribution."—*American Naturalist*.

The scrutineers then brought in their report of the ballot, and the following gentlemen were declared to be duly elected to serve for the ensuing year:—

President.—John Evans, Esq., D.C.L., F.R.S.

Vice Presidents.—Prof. Geo. Busk, F.R.S.; Hyde Clarke, Esq.; Maj.-Gen. A. Lane Fox, F.R.S.; Francis Galton, Esq., F.R.S.; Sir J. Lubbock, Bt., M.P., D.C.L., F.R.S.; Prof. Rolleston, M.D., F.R.S.

Directors and Hon. Secs.—E. W. Brabrook, Esq., F.S.A.; W. L. Distant, Esq.; J. E. Price, Esq., F.S.A.

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Council.—J. Beddoe, Esq., M.D., F.R.S.; James Bonwick Esq., F.R.G.S.; C. H. E. Carmichael, Esq., M.A.; J. Barnard Davis, Esq., M.D., F.R.S.; W. Boyd Dawkins, Esq., F.R.S.; Capt. Harold Dillon, F.S.A.; Prof. W. H. Flower, F.R.S.; A. W. Franks, Esq., M.A., F.R.S.; Charles Harrison, Esq., F.S.A.; J. Park Harrison, Esq., M.A.; Prof. Huxley, F.R.S.; A. L. Lewis, Esq.; R. Biddulph Martin, Esq.; F. W. Rudler, Esq., F.G.S.; C. R. Des Ruffières, Esq., F.R.S.L.; Lord Arthur Russell, M.P.; Rev. Prof. Sayce, M.A., M.R.A.S.; E. Burnet Tylor, Esq., D.C.L.; C. Staniland Wake, Esq.; M. J. Walhouse, Esq., F.R.A.S.

On the motion of Mr. BRABROOK, seconded by Mr. R. B. MARTIN, thanks were returned to the scrutineers, and retiring members of the Council.

A special vote of thanks to the retiring Hon. Sec., Capt. HAROLD DILLON, was moved by Mr. F. G. HILTON PRICE, and seconded by Mr. Hyde Clarke.

Carried unanimously.

ANTHROPOLOGICAL MISCELLANEA.

NOTE ON ESKIMO SKULLS.

In the last number of the *Journal of the Anthropological Institute* (November 1877, page 142) my friend Dr. Rae alludes, on my authority, to "the wonderful difference in form exhibited between skulls of Eskimos from the neighbourhood of Behring Strait, and of those inhabiting Greenland, the latter being extremely dolichocephalic, whilst the former are the very opposite, brachycephalic; the natives of the intermediate coast, from the Coppermine River eastwards, having mesocephalic heads."

As possibly Dr. Rae's impression of what was really said at the lectures to which he refers in such kind terms was occasioned by some ambiguity on my part, I should be glad to be allowed to amend the statement without delay, otherwise the passage quoted, and some others in the same communication, might lead to the erroneous supposition that I had myself examined and exhibited specimens of Eskimos both from Behring Strait and the Coppermine River.

The subject under discussion was the cephalic index, its mode of measurement, ethnological value, &c., and the well-known but curious fact was pointed out that the two extremities of the almost continuous hyperborean land, which are separated by the Atlantic Ocean, are inhabited respectively by one of the longest and one of the shortest headed races known, the Greenlanders and the Lapps; and it was further stated that, as far as our very scanty information allows us to judge, the people of the extensive intermediate land tracts present various degrees of intermediate condition of head formation. With regard to the natives of the northern shores of America a considerable series of Greenlanders was shown, exhibiting the most extreme form of dolicocephaly, and other very marked characters; others were shown from the western side of Baffin's Bay in which the dolicocephaly was slightly diminished, but for evidence of the altered characters, and still greater diminution of length (though far from amounting to true "brachycephaly") seen in the Eskimos of the western shore of North America, the valuable "Thesaurus" of Dr. Barnard Davis was quoted. It will, however, be observed that this rectification of a term does not in the least affect Dr. Rae's general argument. I hope before long to lay before the Institute some observations upon the Osteology of the Eastern

Eskimos, founded upon materials in the Museum under my care, not yet fully described, including a fine series of skulls obtained in the "Pandora" expedition of 1876, and presented by Sir Allen Young.—W. H. Flower.

ANTHROPOLOGY BY DR. PAUL TOPINARD. Translated by Robert T. H. Bartley, M.D. (London: Chapman and Hall 1878).

ANTHROPOLOGY is to many both a new word and a new science. It is also a much misunderstood word and a science whose great advance has been somewhat unobserved in this country. As one test of progress in the other sciences, we may compare the articles on them in the present and former editions of the "Encyclopædia Britannica," but this cannot be done for Anthropology, that word appearing for the first time in the present edition only.

The first Ethnographical Society of which there is any record was instituted in Paris in 1800, under the title of the Société des Observateurs de l'Homme, and died of inanition during the war. The second was instituted in London in 1838, and was of an exclusively philanthropic character (page 16). The term ethnography is somewhat synonymous with ethnology, which is defined by M. Littré as treating of the origin and distribution of peoples, and ethnography of their description; ethnology again is to be considered as a section of anthropology, to which it bears about the same relation as the term Social Morality does to Morality.

The progress of Anthropology has been greatly retarded by the different views which are held as to the proper aim and scope of the science. Amongst the many different subjects it embraces, there was and often is a tendency to enhance the one above the other. The physical anthropologist often regards the prehistoric worker as an antiquarian only, whilst the former is sometimes simply looked upon in the light of a demonstrative anatomist, and thus repulsion and disintegration are frequently produced in the place of attraction and cohesion. Two degrees are admitted: the *Positive*, or collection of ascertainable facts, and the *Comparative*, or natural method of deduction from those facts. A third, or *Superlative*, has been attempted to be introduced, viz., a metaphysical and spiritualistic one. The field of study even when defined by the rigorous method of science is still vast and the workers too few, though, as M. Topinard remarks, "Naturalists, physicians, men of letters, artists, philosophers, lawyers, diplomatists, travellers, archæologists and linguists, are all carrying the material wherewith to build the edifice," page 13.

The first collective work upon Anthropology in this country was that of our father Prichard in 1813, and its subsequent editions. This was shortly followed by "Lectures on the Natural History of Man," by Lawrence. Under the auspices and by the energy of the Anthropological Society, two excellent translations of standard works were given: the "Introduction to Anthropology" of Waitz, and the "Lectures" of Carl Vogt. A short time since a trans-

lation of Oscar Peschel's "Races of Man" was published, and now the present work forms the last of a series, which will perhaps afford any English reader as good an introduction to Anthropology as exists in this language for any science.

M. Topinard is a Physical Anthropologist. He considers the science under two aspects: "Anthropology proper, which has to do with man and his races, and Ethnology, which treats of nations." His book is occupied with the study of the former, which he divides into two parts: (1) The study of man considered as a zoological group. (2) The study of human races as divisions of that group. It is unnecessary for our purpose to either accept or object to this classification. Every author must methodise according to the exigencies of his treatment of a subject, and the longer one studies the labours of the systematists, or attempts that work himself, the sooner he must realize the artificiality of all classifications, the at present unavoidable indefiniteness of terms. The first portion of the work treats "Of man considered in his ensemble, and in his relation with animals." The question was ably discussed in this country by Prof. Huxley (*Man's place in Nature*), 1863, and was a more venturesome undertaking then in London than is the case at the present day in Paris. It is a question solely for the consideration of the biological anthropologist, and much of the hue and cry which greeted Prof. Huxley's demonstration came from that section whose denial or assent could in no way affect the problem to be considered, and whose cheers and counter-cheers are at present simply a distraction to the real worker. When man is placed in his proper zoological position, his real divergence from the nearest allied form can be best appreciated. Brain then shows a great difference of degree though not of kind. "That which distinguishes man from the brute is the quality and quantity of the organ—the quality and quantity of the product," page 163. The question of the zoological affinity of man is nearly always considered as implying that of his derivation. Perhaps logically we should rejoice at such scientific progress, but in other branches of zoology, nearest allied species are constantly and laboriously being grouped together, without the derivative process being even given a moment's thought. The two questions can be kept apart, if necessary, and can also be done as easily as differentiating the process of making money, and disposing of it properly afterwards.

The second portion of the volume is devoted to the consideration "of the races of mankind." Here the physical method of comparison is again pursued. Even for purposes of classification two systems of research are open: "Anatomical, to be studied in the laboratory; and external, to be observed on the living subject." The first M. Topinard considers the truly Anthropological one, and in Paris at least it is now being thoroughly worked out. When we learn that for some time the laboratory of M. Broca has been enriched with brains preserved in alcohol which have been sent from all parts of the world, we may have some idea of the amount of material being collected, and of the care bestowed on research we cannot do better

than quote our author: "When anyone has the advantage, such as we have had, of seeing M. Broca at work in his laboratory, comparing all the measurements upon thousands of skulls, rejecting those upon which he appeared to set especial value, recommencing upon, and examining entire series which he regarded as at all doubtful, a thought crosses the mind. Is it certain that everywhere else so much scrupulous care has been bestowed?" page 225. At the conclusion of the second part, a question is discussed which we believed had fulfilled Mr. Darwin's prophecy, and died "a silent and unobserved death." "Is the human family composed of genera, of species, or of varieties?" M. Topinard replies that if we agree to the specific characters of the different forms grouped in the genera "Ursus" and "Bos" we must logically apply the same division to man. But does the same necessity arise for this specific differentiation in both cases? What are species and genera but terms in the catalogue we are making of the animal world? the one equal to the title of a book, and the other to the number of the shelf on which it is placed. M. Topinard defines three types of man as specific, but what is to prevent them from being again sub-divided? The deadly specific upas tree would grow larger and larger, and would afford a good roost for systematists; whilst under its shadow Anthropology would wither. It can be compared to the beauty of the first days of a creed, when all is hope and energy; then come scholastic definitions, which prove in time to have a greater fascination than the original doctrine. Prof. Huxley has separated five good types, and it may perhaps safely be prophesied that that arrangement will eventually be accepted as the basis of all future arrangements, in the same manner as Dr. Scclater's zoological areas are considered at the present time.

The Origin of Man is the title of the last and shortest division of this excellent manual. It is a résumé of the views which are now held by most anthropologists upon the subject, excepting some differences upon points of detail. The land that produced Lamarck should have been the first to have greeted Darwin. Truth must eventually conquer, and M. Topinard concludes rightly, that "if we were to boast of our genealogy and not of our actions, we might indeed consider ourselves humiliated," p. 533. The principal fault to be ascribed to the translator is the nature of his preface. Surely it was unnecessary to record that he did not endorse all the views of the author, or that he had an entire belief in the authenticity of the Mosaic Record. In the first case the reader simply procures the work to learn the views of M. Topinard, and the second statement will only be valuable when the public are anxious about the matter. Some slight improvements may be made in a subsequent edition. "The brain thinks" (p. 2.) is not a happy expression, nor is such a sentence as the "sedentary" life of the beaver or the ant (p. 3) to be commended for zoological clearness or accuracy.

Thanks are however due to both publisher and translator for issuing in this country a work that can only be considered as a distinct gain to the science of Anthropology.

Mr. Grant Allen is anxious, for a scientific purpose, to obtain definite information with regard to the perception of colour amongst different races of men; and would be greatly obliged if missionaries, travellers, anthropologists, and others who have been brought into contact with savage life could furnish him with answers to the following questions:—

- (1.) What is the race to whom your answers refer?
- (2.) How many colours can they distinguish?
- (3.) Can they distinguish between blue and green?
- (4.) Can they distinguish between blue and violet?
- (5.) Can they distinguish any mixed shades, such as mauve, lilac, orange, and purple?
- (6.) For how many colours have they names in their language?
- (7.) Have they separate names for green and blue?
- (8.) Have they separate names for blue and violet?
- (9.) How many colours do they discriminate in the rainbow?
- (10.) What pigments do they employ in personal decoration or in ornament?
- (11.) Have they a separate name for each pigment?
- (12.) Have they separate names for any colour for which they have no pigment?

Answers should be sent to Mr. Allen, Broad Street, Lyme Regis, Dorset.

ANTHROPOLOGICAL GLEANINGS. Compiled by W. L. DISTANT.

"A Calendar of the Dakota Nation," by Brevet Lieutenant-Colonel Garrick Mallery, U.S.I., *Bulletin U.S. Geol. and Geog. Survey*, vol. iii, No. I, April 1877. "The chart presented with this paper is ascertained to be the calendar of the Dakota nation, extending over the seventy-one years, commencing with the winter of A.D. 1799, 1800. The copy from which the lithograph was taken is traced on a strip of cotton cloth, in size one yard square, which the symbols almost entirely fill. This seems to be a unique attempt amongst these people to establish a chronological system. Picture-writing on hides or bark is very common, but is usually only the biography of a chief, or the history of a particular war, whilst "painted robes" are now manufactured for sale to the wealthy amateur.

The duplicate from which the copy was immediately taken was in the possession of Basil Clément, a half-bred interpreter, living at Little Bend, near Fort Sully, Dak., who professed to have obtained information concerning the chart and its symbols from personal inquiries of many Indians, and whose dictated translation of them, reduced to writing in his own words, forms the basis of that given in the paper. Intercourse with missionaries and other whites may perhaps have given the Dakotas some idea of dates, and awakened a sense of want in that direction, especially as the Calendar begins at a time coinciding with the first year of the present century.

Col. Mallory considers these symbols, and also the existence of Shamanism as evidence of a North Atlantic affinity.

"The Twana Indians," by Rev. M. Eells, *Bull. U.S. Geol. and Geog. Surv.*, vol. iii, No. I, April 1877. This paper is in the form of answers to questions in the "Ethnological directions relative to the Indian Tribes of the U.S., prepared under direction of the Indian Bureau, by Otis T. Mason, Part 1, "Man;" Part 2, Surroundings or "Environment;" Part 3, "Culture." Mr. Eells was a missionary among these Indians, and it is impossible to summarize his full information on all the above subjects, especially under the Section Religion: *a.* "Objects of Reverence and Worship;" *b.* "Holy Places and Objects;" *c.* "Ecclesiastical Organization;" *d.* "Sacred Rites;" *e.* "Myths;" *f.* "Belief." The last is treated at length, and contains much sociological information. One paragraph may be quoted. "Their idea of heaven formerly was that it was below, and a place for good hunting and fishing for good Indians. They had no hell, as they supposed wicked persons would be turned into a rock or beast. Now most of them believe the heaven and hell of the Bible to be true, I think."

"Methods of making Stone Weapons," by Paul Schumacher. *Bull U.S. Geol. and Geog. Surv.*, vol. iii, No. 3, May 1877. During rambles among the remnants of the Pacific coast aborigines, the author had the good fortune to obtain from the last arrow-maker of the Klamath Indians (since deceased) an exhibition of the mode of making stone weapons. For the manufacture of arrow and spear-points, knives, borers, adzes, &c., chert, chalcedony, jasper, agate, obsidian, and similar stones of conchoidal fracture are used. The rock is first exposed to fire, and, after a thorough heating, rapidly cooled off, when it flakes readily into sherds of different sizes under well-directed blows at its cleavage. To work the flakes into the desired forms, tools are required, of which descriptions and figures are given.

(This is translated by the author from an earlier publication in "*Archiv für Anthropologie*," vol. vii, p. 263, *et seq.*).

The method of straightening the arrow-shaft, as learnt from living witnesses among the aborigines of California and Oregon is also described.

"Remarks concerning two Divisions of Indians inhabiting Arizona, New Mexico, Utah, and California." By Dr. Edwd. Palmer. *American Naturalist*, vol. xi, p. 735.

Having travelled extensively through New Mexico, and examined the so-called ancient graves and mounds, and studied the Indians now living in that region, Dr. Palmer has arrived at the conclusion that this region was formerly inhabited by two divisions or classes of Indians, distinguishable by their mode of burial—one burning, the other inhuming, the corpses—and by their dwellings and domestic arts. These are considered as the Aztecs, or crema-

tionists, and the Toltecs who buried their dead. Dr. Palmer has little faith in the old Spanish historians, and considers that when the Aztecs were represented as offering up human sacrifices to their gods, they were only observing the custom of burning their dead, and that the former story was used for the purpose of making "religious capital." In the same region are to be found graves which do not belong to the Indians now living there, and containing either the bodies or ashes of human beings, whose epoch we have no means of determining.

"The Seven Towns of Moqui," by E. A. Barber. *American Naturalist*, vol. xi. p. 728. Moqui is situated in Arizona, in long. 110° to 111° west, and latitude 35° to 36° north. They were first visited by the Spaniards in 1540. The names of the seven towns are subject to shades of variation in pronunciation at different times, because the tribe possesses no written language by which they might be permanently recorded, yet the majority of these almost unpronounceable names can be recognised in the most ancient Spanish chronicles. Mr. Wm. H. Jackson, the photographer of the U. S. Geol. Survey returned to the Moqui Pueblos during the spring of 1877, and whilst there an actual census was taken. This showed that the percentage of males is larger than that of females, and Mr. Barber thinks this fact may be accounted for by the unadventurous and pacific character of the men, being thus less liable to accident. Polygamy is rare among them and polyandry unknown. Further analysis shows that the mortality is much greater than the increase, and the Moquis are rapidly passing away.

Capt. Hildyard of the "Dacia," in early life, when cruising in a schooner in the Pacific, was cast ashore on one of the Pellew Islands. Here he and his shipmates were detained for many months in honorable captivity, the native king being desirous of securing some civilised men as allies in his wars with the neighbouring islanders. While detained on the island they discovered that the Prime Minister was a fellow-countryman. He was an Irishman, having some fifty years before, when he was about twenty years old, been left on the island by a whaler. He had almost forgotten his native language. In complexion and habits he was as one born on the Pellew Islands, and he evinced no desire to return to a more civilised portion of the world. Thos. Brassey, M.P., "Round the world in the Sunbeam." *Nineteenth Century*, vol. ii, p. 776 (1877.)

An interesting little brochure, entitled *The Dieyrie Tribe of Australian Aborigines*, by Mr. S. Gason, which was published at Adelaide some time back, has newly reached us. The tribe, which is said to be fast dying out, inhabits a district some 630 miles north of Adelaide, through which Cooper's Creek runs. Mr. Gason furnishes an account of the manners and customs and character of the race, the country they inhabit, their rites, ceremonies, and superstitions, and their social usages and laws, as well as a catalogue of animals,

weapons, and ornaments found among them. He also adds examples of the construction of the dialect spoken by them, together with a complete vocabulary. *Academy*, Nov. 10, 1877 p. 450.

"On the Mammalia of North Greenland and Grinnell Land," by H. W. Fielden. "*Zoologist*," 3rd Ser. vol. i, p. 314 (1877). Under the designation of "*Homo Grœnlandus*," Capt. Fielden treats of "The most northern known inhabitants of our globe, the Eskimo that dwell along the coasts of North Greenland between Cape York, the northern extremity of Melville Bay, and the Great Humboldt glacier, which discharges into Smith Sound on its eastern side, between the seventy-ninth and eightieth parallels of north latitude." The most northern settlement of these Eskimo at the present day is Etah, on the northern shore of Foulke Fjord, from whence the hunters of the tribe travel along the Greenland coast as far north as the southern edge of the Humboldt glacier, a little beyond the seventy-ninth degree. A few miles south of Cape Beechey were found circles of tent stones (as were also found elsewhere), and near at hand a small heap of rock crystals and flakes, showing where the artificers in stone had been making arrow or harpoon heads. Close under Cape Beechey, and about six or seven miles from the eighty-second parallel, Capt. Fielden came across "the most northern traces of man that have yet been found." They consisted of the framework of a large wooden sledge, a stone lamp in good preservation, and a very perfect snow-scraper made out of a walrus-tusk. The author states, as the result of his observations, "that along the shores of Smith Sound, Kennedy Channel, Hall Basin, and Robeson Channel, three degrees north of the present extreme range of the Etah Eskimo, the most northern race of man known, there are to be found not only traces of Eskimo wanderings, but many proofs of former permanent habitations in places where under present climatic conditions it would be impossible for even the 'Arctic Highlanders' now to exist."

"South Slavonians and Rajpoots," by Sir Henry Summer Maine, "*Nineteenth Century*," vol. ii, p. 796 (1877).

It would be impossible to summarise this valuable paper. Sir Henry Maine commences with the remark, "Nothing would be of higher value to scientific archæology than any addition to our opportunities of observing societies of Aryan race still remaining in a condition of barbarism. The closer examination of the Turkish provinces in Europe, which many causes have recently made practicable has already recovered for us a nearly perfect example of one of the oldest institutions of the Aryan race—probably, with the exception of the Family, the very oldest. The House Community is not peculiar to the territories and dependencies of the Turkish Empire, since it is found among all the South Slavonian populations, but it occurs in greatest completeness whenever men of the South Slavonian stock are now or have been lately under Mussulman government, or where, like the Montenegrins, they have had their whole history

determined by incessant struggles with Mussulman power. Sir H. Maine describes the House Community as an extension of the Family, an association of several and even of many related families, living together substantially in a common dwelling or group of dwellings, following a common occupation, and governed by a common chief. "The North Slavonians, or Russians, have the Village Community. The House Community belongs specially to the South Slavonians, the Croats, Dalmatians, Montenegrins, Servians, and the New Slavonian Bulgarians. On the other hand, in India, the Joint Family and the Village Community are often found side by side, sometimes indeed bound together by complex common relations." The House Communities and Natural Families, which make up the bulk of South Slavonian society, are constantly running into one another, the community dissolving into a mere collection of families, the family expanding into the community, and both groups occasionally dissolve in other ways. From a survey of Slavonian usages as a whole, there is little doubt that the natural development of the House Community would be into the Village Community.

"A Cruise in the New Hebrides," by Leo. Layard. "*Field*," February 2nd, 1878.

At "Pele," where the Rev. W. Gordon (afterwards murdered in Erromanga) had resided for a few months, some barbed wooden-pointed arrows were obtained. These, to the great astonishment of Mr. Layard, were found to be *feathered*, which he remarks is the only instance of feathered arrows met with in all the collection he had seen from the South Sea Islands.

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CORRIGENDA ET ADDENDA.

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Page 155, line 34, for "not," read "now."
 " 158, " 15, for "least," read "last."
 " 159, erase line 6.

